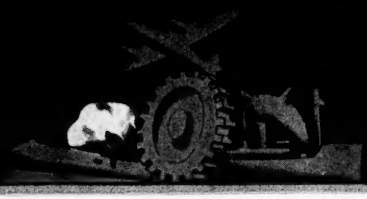
MANUFACTURERS RECORD



MANPOWER

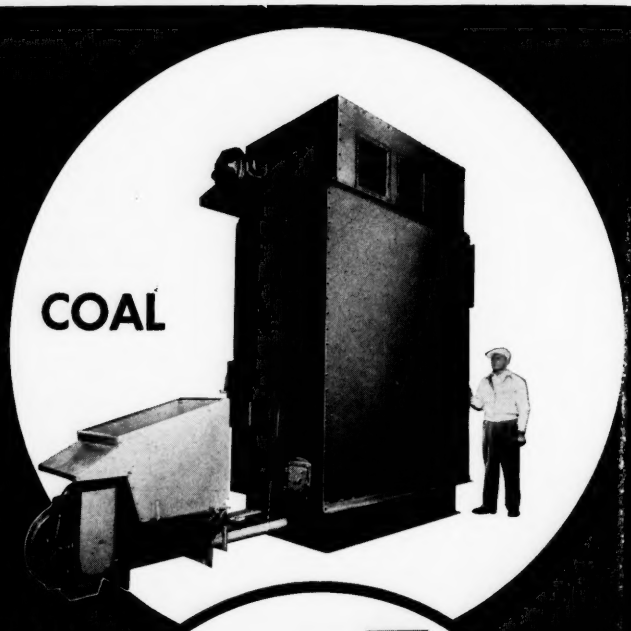
"It can be said unequivocally that our own government is the chief offender in the entire country from the standpoint of wasting and hoarding manpower."

Senator Harry F. Byrd

(See his article on page 25 of this issue)

DRAVO DIRECT FIRED HEATERS

. . . SAVE TRANSPORTATION & CRITICAL MATERIALS



● By actual comparison, made for the information of men responsible for allocating vital materials—heating systems of Dravo self-fired units use less metal* in the making and fewer man-hours in installing than heating plants of conventional design.

In operation, fuel requirements are 20 to 25% lower—a desirable cash economy in peace time, but important today as a means of conserving fuel and its transportation.

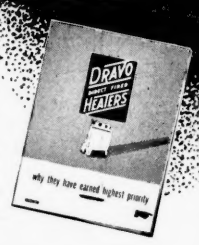
The Direct-Fired method of producing heat is not new—Dravo sold and installed such systems a decade ago. Today production and sales are soaring because of the demands of the War Program—but orders for quick delivery of standard sizes for essential plants can still be taken.

Architects, consultants, heating engineers, plant owners, purchasing agents,—anyone with an interest in the heating problem of a war plant—write or wire for description of the line of DRAVO HEATERS. Our engineering department will submit detailed recommendations, prices, weights, estimated fuel consumption, and delivery schedules for comparison with similar data on any other heating system you may have under consideration.

DRAVO CORPORATION
HEATER DEPARTMENT
DRAVO BUILDING PITTSBURGH, PA.
Sales Offices in Principal Cities

*** WHY DRAVO HEATERS HAVE EARNED HIGHEST PRIORITY**

● Just off the press, 12 page booklet showing the savings in critical materials made possible through the use of Dravo Heaters. Copy on request.

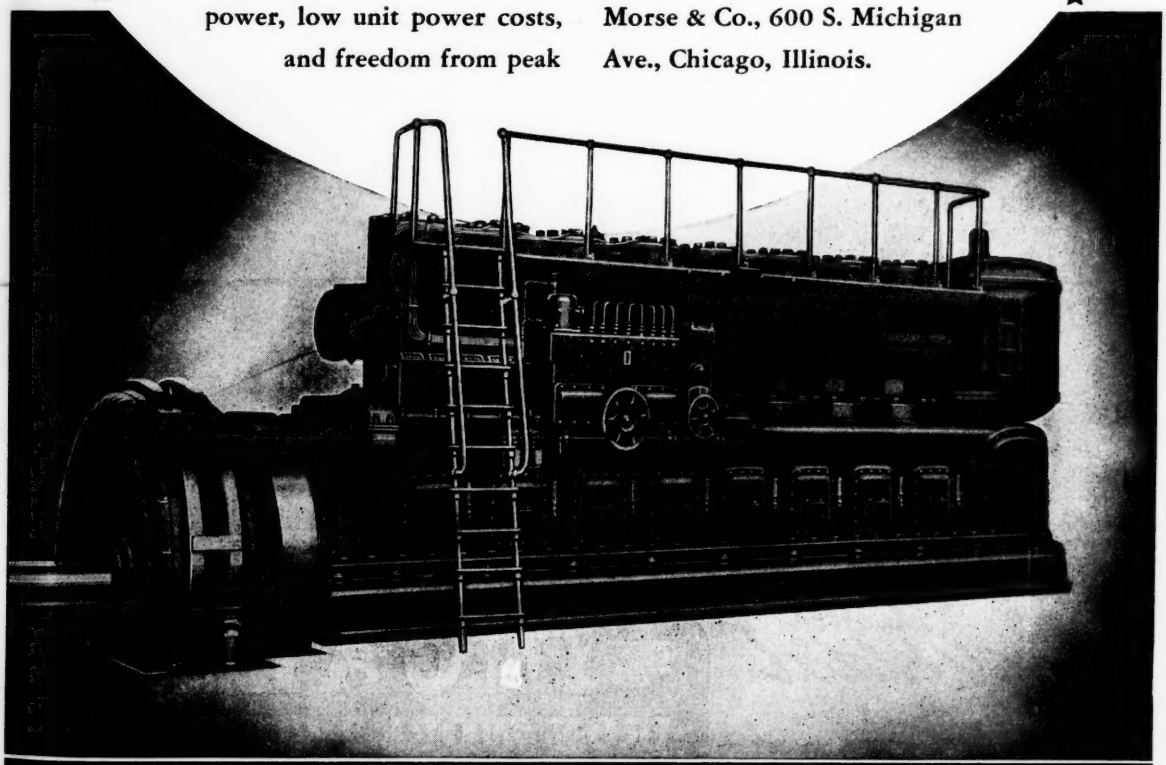


POWER

for High-priority Jobs

Do you need extra power to meet war production schedules? Then use your priority to buy Fairbanks-Morse Diesel-generators. They will assure you of uninterrupted power, low unit power costs, and freedom from peak penalties . . . not only now, but in the future, too.

F-M power engineers, unbiased because the line includes all types and sizes, are ready to study your needs. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.



FAIRBANKS-MORSE

DIESELS
MOTORS
SCALES
PUMPS

XUM

Here Come the C-3's!

Smooth-skinned, strong and efficient, these big 100%-welded C-3's come steaming from the South's greatest shipyard . . . Ingalls pioneered all-welded ships, now cuts building expense and time with "production line" methods . . . C-3's use less steel, carry larger cargoes faster . . . Vital in war-time, they will carry the big load in commerce after the war.

100% Welded

Fleet of three 100%-welded C-3 ships built by Ingalls Shipbuilding Corporation. These are now in U. S. Government service.

AFTER THE WAR — TRAVEL AND SHIP IN AMERICAN-BUILT VESSELS

THE INGALLS IRON WORKS COMPANY
BIRMINGHAM, ALABAMA

Subsidiary Companies and Divisions
THE STEEL CONSTRUCTION COMPANY • THE INGALLS SHIPBUILDING CORPORATION
BIRMINGHAM TANK COMPANY

Shipyards PASCAGOULA, MISSISSIPPI • DECATUR, ALABAMA
Branch Offices NEW YORK • WASHINGTON • PITTSBURGH • ATLANTA • NEW ORLEANS

MANUFACTURERS RECORD

Established 1882

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DECEMBER, 1942

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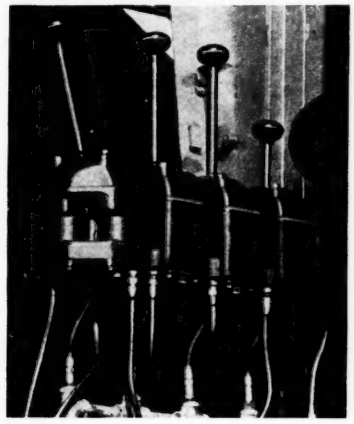
Remote Control SYSTEMS for Industrial Use



COMPRESSED air, because of its inherent power, flexibility, and adaptability can be utilized to perform many functions on industrial equipment with greater speed, safety, dependability, and productiveness, than by ordinary manual or mechanical means...Effortless manipulation, greater convenience, remote control, and co-ordination of many operations in proper sequence are made possible by this noteworthy development — the "Flexair" Valve.

Available in a variety of forms, with one or many functions, this valve facilitates operation of clutches, mechanical movements, or other devices. A group of "Flexair" valves controlling a multiplicity of inter-locked operations on an excavator, is shown in the illustration.

Our engineers will be glad to cooperate in analysis and development of a system to solve your particular operating problem...Such a system will be complete with Westinghouse "Flexair" Valves, air compressors, tanks, operating cylinders, "Savair" cocks, etc. — devices that embody distinctive features evolved through 73 years experience in designing and building pneumatic control apparatus.

Westinghouse . . . .
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.

ATTENTION, INDUSTRY!

TODAY, IN OUR RACE against TIME, industrial expansion requires rapid, dependable and accurate planning.

THERE EXISTS IN THE Coastal Southeast the vital, time-saving elements which the present situation demands.

THE COAST LINE'S DEVELOPMENT SERVICE has essential information concerning the Southeast which should be helpful in selecting industrial locations.

For complete and confidential data, write, telegraph or call:

R. P. JOBB

Manager Development Service
Wilmington, N. C.

ATLANTIC COAST LINE RAILROAD

As the Editor Sees It

Any magazine such as the MANUFACTURERS RECORD receives a great deal of comment, either commending or condemning its editorial policy. Among these many reactions it may be very interesting to see one published comment and our reply to it.

"A great magazine of industry carries the statement on the front 'EVERY USELESS GOVERNMENT EMPLOYEE IS AS MUCH A MENACE TO OUR WAR EFFORT AS A GERMAN, JAP OR ITALIAN.' Thousands of men will quote that with their endorsement, and other thousands will cite it, with approval. It is, as I see it, a misstatement of fact, not merely a gross exaggeration. It is essentially untrue. Such misstatements are easily made, but they offend those who think clearly and abhor misleading statements of fact, or distortions of the truth."

We did not think that we were making a misleading statement of fact, or distortion of the truth when we wrote the cover piece referred to. It is perfectly true that our economics and logic were seeds planted a good many years ago, but we still believe that they are fundamental truths.

Each useless government employee is one man less who might be devoting his time and energy to furthering the war effort and the welfare of his country. Therefore he is one unit deducted from our total population. As a political parasite living on the production of the nation and the security permitted to it by our armed forces he also becomes a liability unit. He is a living incubus on the backs of those real men who by their production or their patriotism in the armed forces make possible his life of ease and safety. Because he not only adds nothing to, but definitely subtracts from the nation's war effort we repeat that he is as much a menace as a German, a Jap, or an Italian.

Letters from constituents to members of Congress protesting against needless spending and the clutter of bureaus in Washington are increasing daily. Since the last election Congress is paying more attention to such opinions than it previously did.

Senator Connelly recently said: "* * * in my belief most of the dissatisfaction which found expression in the recent election is with bureaus and agencies which we have created and to which tremendous powers have been granted."

The people will get more than a taste of increased taxes in 1943 with the promise of higher taxes later if our government is to be kept solvent.

A successful campaign was waged in the City of Baltimore some years ago by the leader of the minority party who had one slogan which he used persistently—"Look at the lower right hand corner of

your tax bill." Evidently the people looked, because the candidate who in the minds of the entrenched politicians didn't have a chance, won the election.

Now the people are all out for war. They will accept willingly every sacrifice they may be called upon to make to defeat the dictators, but they are unwilling to accept the reckless extravagance and incompetence by a government which is frustrating and hampering winning the war.

Patriotic members of both houses of Congress, like Senator Byrd whose article appears on another page, recognize the situation and are exerting the utmost influence they can bring to bear on the administration to correct it.

It is informing to cite an illustration given by the Citizens Emergency Committee in one of its letters showing the depths to which unreasoning, or selfish, bureaucracy can stoop.

A young employee of the government wanted to get up a new bureau in his department. His aim was to be chief of the new set-up with a higher salary. "So because of this bureaucratic impulse the War Production Board came close to having a new unit, one which might have been called the Administrative Unit of the Analysis Section of the Priority Requirements Plan Division of the Aircraft Branch of the Industrial Production Department of the War Production Board."

The life of the editor of a magazine is not always a bed of roses. It is perfectly true that he is often commended for his opinions, but it is also equally true that he is often condemned. We were particularly amused at a letter received from the Principal of a High School somewhere in or near San Francisco, from which we quote the following two paragraphs:

"The element of insidious treason contained in your Open Letter to the President, together with the insolent tone of the missive, prompts me to express my disapproval of you and your publication. It is quite evident that you have never had the advantage of ordinary training in civility, and that you have not even the terms of loyalty in your system.

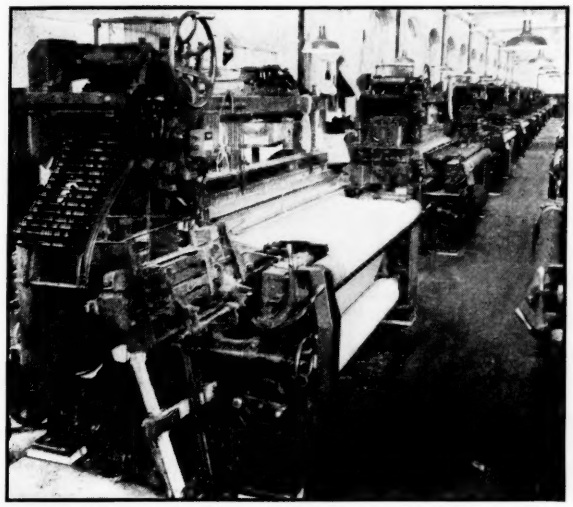
"Rodents like you, by seeking to advance your own interests in a time of national peril, do not hesitate to undermine public confidence in our government, thus preparing the way for shameful defeat."

For the information of those who either agree with our critic, or see eye to eye with us, we also quote in its entirety our reply to him:

"Your letter of November 24th has just been received, and I wish to acknowledge it.

"It may be of interest to you to know that I received a very courteous reply from the President of the United States to my Open Letter. This reply was personal and I cannot quote from it even if I should wish to do so. The President of the United States is a gentleman."

After 37 years— STILL A GOOD FLOOR



Laid in 1905 in a Lowell, Mass., weave room, this Maple floor shows scant signs of wear. Looms mounted on Felters Unisorb, without bolts or lag-screws.

It's NORTHERN HARD Maple Of Course

In hundreds of textile mills, floors of Northern Hard Maple are rolling up records—for long life, sturdy resistance to wear, low cost of upkeep. The Lowell, Mass., floor pictured above, demonstrates again the long life of Hard Maple in textile mills.

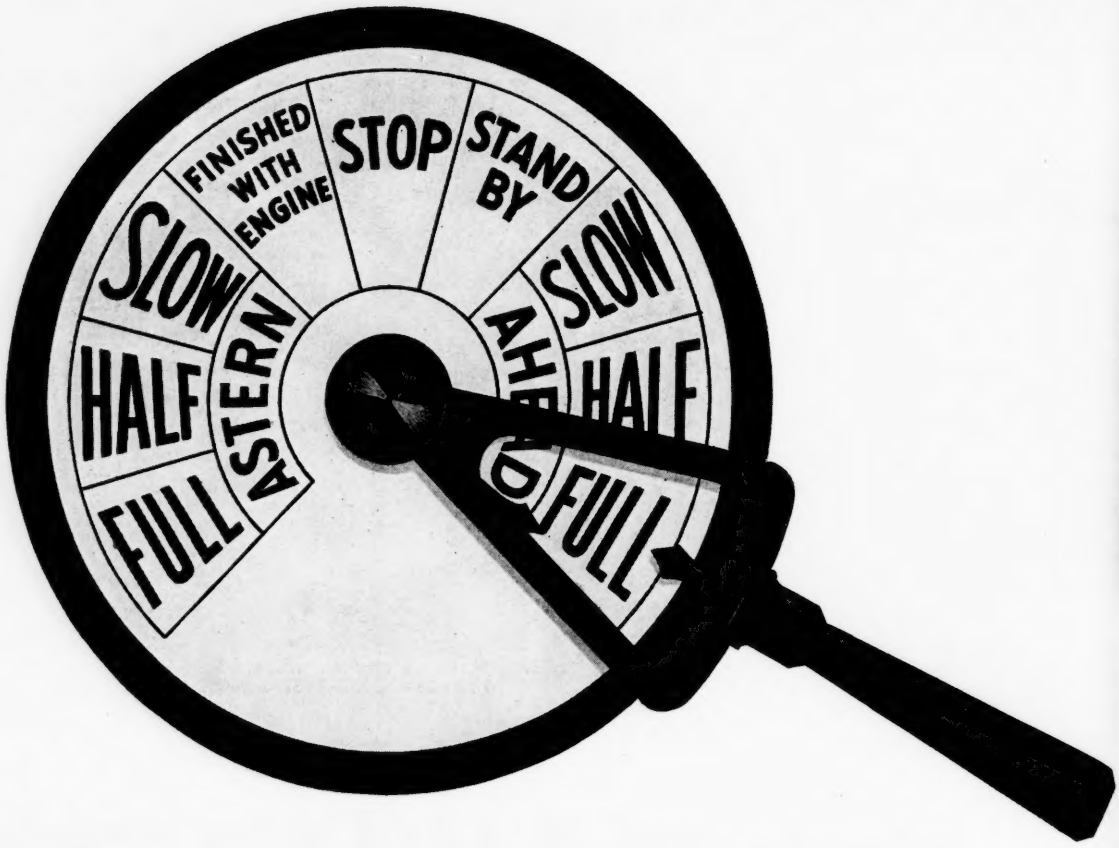
A Maple floor is modern! Warm, dry—it increases worker-efficiency. Its tough, non-dusting surface protects machinery. Mill traffic moves easily over its hard smoothness!

Correctly finished, brushing alone cleans a Hard Maple floor. This smooth, tight-grained wood is non-lint-catching. Better working light is reflected by its bright, clean surface. Consider carefully these many advantages of Northern Hard Maple whenever you're planning new floors or reflooring. Specify **MFMA** (trade-marked, guaranteed) Northern Hard Maple. *Ask your architect!*

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1797 McCormick Building, Chicago, Illinois

Write for folder on heavy-duty finishes for old or new Maple floors, which further reduce cleaning costs. See Sweet's, Sec. 11/82.

Floor *with* MFMA Maple
REG. U.S. PAT. OFF.
(NORTHERN HARD)



Strong new links in the lifeline

At Chickasaw and Baltimore, at Sparrows Point, Pascagoula and Beaumont, at Savannah, Tampa, Mobile and Newport News, at a dozen other Southern points, shipyards are working night and day. They're forging strong new links in the lifeline of the United Nations. They're building Liberty Ships and other cargo vessels, and tankers; Naval vessels, aircraft rescue boats and barges; buoy boats and auxiliaries.

Including Bethlehem's yards at Baltimore and Sparrows Point, there are more than 150 commercial shipbuilding ways in the South capable of accommodating vessels of 300 or more feet in length. In addition, there are scores of smaller yards, now busily building Naval and cargo vessels.

As a builder of both warships and cargo vessels, as well as a producer of virtually every form of steel, Bethlehem understands the steel requirements of shipbuilders.

With its steel-making plants accessible to the busy shipways of the South, Bethlehem is in a favorable position to help in filling the mounting steel requirements of Southern shipbuilders. Steel produced by Bethlehem is moving in large tonnages to the Southern shipyards that are playing so important a part in meeting emergency demands for Naval and merchant vessels.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

SPEEDING AIR SUPREMACY
Pozzolith (Cement Dispersion) was used to save precious days in construction of the walls and floors in this mammoth black-out plant, now producing giant bombers and flying fortresses.

POZZOLITH (CEMENT DISPERSION) HELPED THIS PLANT DELIVER PLANES QUICKER...

POZZOLITH (Cement Dispersion) — important technological development — is helping deliver war materials sooner . . . saving millions of ton-miles of vital transportation space . . . reducing cost of construction . . . producing concrete of unusual strength and durability.

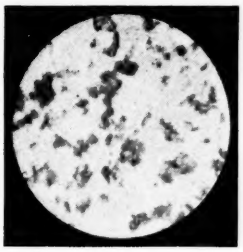
Modern developments in synthetic rubber, plastics, steel, ceramics and many other basic materials have resulted from specialized applications of the *dispersion* principal. The specific dispersing agent for cement (lignin derivative, marketed as Pozzolith), now greatly increases the efficiency of all concrete.

Used in millions of yards of concrete since 1932, Cement Dispersion has demonstrated its ability to meet today's construction demands — speed, economy, durability.

Technical papers—"Economics of Cement Dispersion" (for mass concrete) and "Cement Dispersion and Air Entrainment" (for runways and pavement), sent upon request.

THE MASTER BUILDERS COMPANY
CLEVELAND, OHIO TORONTO, ONTARIO

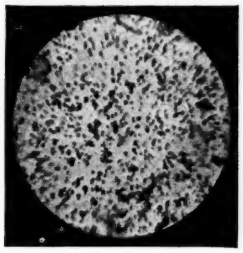
HOW CEMENT DISPERSION WORKS



Cement suspended in water
UNDISPERSED

WITHOUT POZZOLITH

In a normal concrete mix, cement particles tend to bunch together, thereby (1) limiting hydration and (2) trapping water within the cement clumps. (See photomicrograph above).



Cement suspended in water
DISPERSED

WITH POZZOLITH

Cement Dispersion drives these particles apart and (1) exposes their entire surface area to hydration, at the same time (2) making the water entrapped in the clumps available for lubrication of the mix. (See photomicrograph above).

Pozzolith (Cement Dispersion) produces the following results in concrete: greater strength, workability, placeability watertightness, durability and lower costs.

MASTER BUILDERS

MASTERBUILT PRODUCTS

Efficient speed is a civil as well as a military objective, today. In planning a water supply line the conservation of time and labor is of paramount importance. The ease and speed with which Lock Joint Reinforced Concrete Pipe can be installed are qualities which align themselves with those of durability and economy.

Sturdy, long lasting Lock Joint pipes are fabricated right on the job and by special curing operations can be laid within a few days after manufacture. By adapting pipe design to closely conform to hydraulic and operating conditions, the Lock Joint Pipe Company performs another important service—the conservation of war-essential materials.

In planning your pipeline project, look to the future while keeping one eye focused on the demands of the times. Conserve time, labor and material. Specify Lock Joint Reinforced Concrete Pipe.

SCOPE OF SERVICES

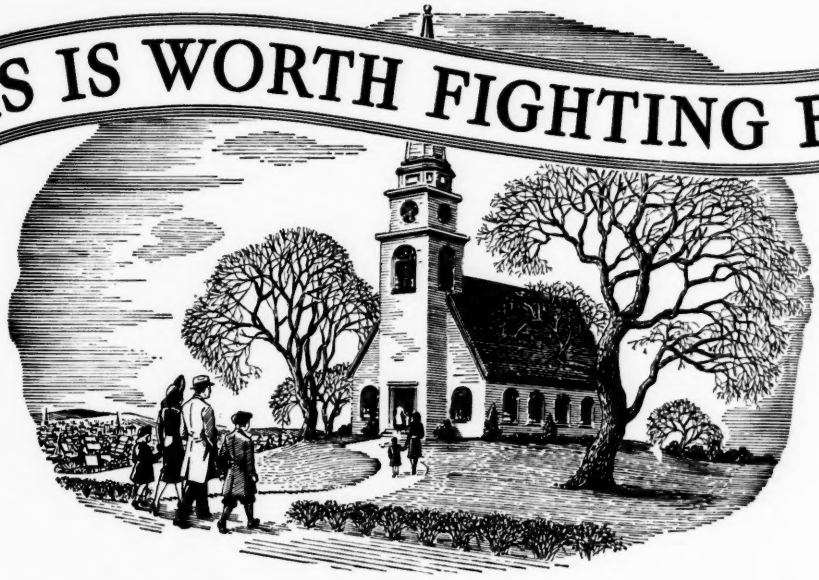
Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

LOCK JOINT PIPE COMPANY
Established 1905
AMPERE • NEW JERSEY

Denver, Colo. • Chicago, Ill.
Kenilworth, N. J. • Kansas City, Mo.
Rock Island, Ill. • White Plains, N. Y.
Valley Park, Mo. • Cleveland, Ohio
Hartford, Conn. • Navarre, Ohio

THIS IS WORTH FIGHTING FOR..



The right to worship as we please

THE CHURCH, to the enemies of America, is a monstrosity to be destroyed. They would padlock its doors and send our children goose-stepping in search of new gods. They would substitute pagan rites for the simple, sustaining beauty of our commemoration of the birth of Christ.

So today America is at war—a war we're going to win. We are determined that our church bells will never be stilled; that every American shall have freedom to worship God in his own way; that Christmas and the spirit of Christmas shall live.

That is the solemn pledge of fighting Americans on the war fronts. That is the solemn pledge of working Americans on the home front. That is the solemn pledge of the Southern Railway System and its officers and employees. To its fulfillment we have dedicated all of our transportation services and facilities, gratefully putting war transportation needs ahead of every other transportation need.

This year, we have carried about two million men in uniform; almost one million in 3,366 special trains; another half million in 13,174 extra cars on regular trains; and still another half million traveling on the low furlough fares granted to all members of Uncle Sam's armed forces.

This year, we have operated 1,592 extra sections of our regular trains, to take care of overflow crowds.

This year, we have handled more tons of freight than we ever handled in all our half-century of service. We have done the job so smoothly and so efficiently as to bring the highest praise from government and army officers, for most of this huge tonnage is war freight.

Above all, we have kept plugging away, day and night, to fulfill the railroad industry's solemn pledge "to meet to the full the demands of commerce and the needs of national defense."

So far we have met these needs "to the full." And we will continue to meet them to the full—if they can be met by the ultimate in devotion, courage, resourcefulness and human strength. For we know that the world will enter upon a happier and a brighter era when Victory comes—an era in which there will be a new concept of the majesty of the soul and the real meaning of "peace, good will toward men."

That is worth fighting for!

Ernest E. Norris

President.

SOUTHERN RAILWAY SYSTEM

THE SOUTHERN SERVES THE SOUTH

"Without obligating us in any way, please compile for our firm one of your surveys detailing the raw materials available to industry on the Texas Gulf Coast, particularly as related to our products . . ."

IN THIS region rich in vital raw materials and natural resources, the Houston Pipe Line Company's far-flung pipe line system, strategically located across the length and breadth of the Texas Gulf Coast, daily dispatches enormous quantities of NATURAL GAS. Industry has responded to the demand for larger production of the essential materials of war. Many have solved the plant expansion problem with new plants on the Texas Gulf Coast. Steel manufacture, tin smelting, magnesium manufactured from sea water, ship building, oil refining, arms and ordnance manufacture—these and many others are here already and in production. In spite of the all-out war production that is increasing daily from this section, the surface scarcely has been scratched for the Texas Gulf Coast's industrial possibilities.

Consider the many advantages this region offers to industry for post-war expansion. Our Research Department will be glad to furnish you with any facts and figures you may desire in the form of a confidential survey of the region's resources, individualized to your own processes and products. Dispatch your request now to Research Department, Houston Pipe Line Company, Petroleum Building, Houston, Texas.

For Victory Buy United States Savings Bonds

HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
GEO. A. HILL, JR., President
Wholesalers of
Natural GAS

Call Scully

for NATIONAL EMERGENCY ALLOY STEELS

These new alloy steels were developed as substitutes for the old style alloy steels to save critical materials such as nickel and chromium. They cover a wide range of properties and were especially designed to meet present conditions. In fact, many "NE" steels are actually outperforming the steels previously used.

We have "National Emergency Alloy Steels" in stock. We welcome your inquiries and will gladly assist you in determining the grades best suited to your needs. Telephone, write or wire the Scully Warehouse nearest you.

for GENERAL PURPOSE STEELS

Steel products, tools, machinery and equipment

Like yours, our first job is to do everything possible to speed war production. So, if you lack steel to finish a war job, or if your production is in danger of being slowed down for want of some piece of steel—call the nearest Scully Warehouse. Many such calls have kept wheels turning.

Although our stocks are not what we wish they were, what we have can be yours—in a hurry—subject, of course, to priority restrictions.

If we don't have what you need, we'll do everything we can to help you find a source of supply. So try Scully—note our phone and teletype numbers below, at the left.

for AIRPLANE MATERIALS

Our Chicago Warehouse has been designated by the War Production Board as a warehouse to distribute the following aircraft products:

WD-X-4130 Sheets, *Open Hearth, Normalized, Pickled and Oiled to Spec. AN-QQ-S-685, Condition N. All gauges .020 to .375 sheets 18 x 72".*

Stainless Steel Rounds, *Spec. AN-QQ-S-771. Composition "FM", Physical Condition "A". Surface condition, centerless ground.*

Stainless Sheets—*Spec. AN-QQ-S-772, Composition "G", Physical Condition "A", Surface Condition No. 1.*

These materials are for use in airplanes only and available only to the aircraft industry and sub-contractors. They are in stock in our Chicago Warehouse. If you are eligible for these materials, phone, write or wire: Scully Steel Products Company, 1319 Wabansia Avenue, Chicago, Ill.—Telephone, BRUnswick 2000 —Teletype CG. 605.

SCULLY STEEL PRODUCTS COMPANY

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BALTIMORE	GIlmore 3100
Teletype BA. 63	
BOSTON	STAdium 9400
CLEVELAND	HEnderson 5750
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PITTSBURGH	CEdar 7780
Teletype PG. 475	
ST. LOUIS	MAin 5235
MINNEAPOLIS-ST. PAUL	NEstor 2821
NEWARK, N.J.	Bigelow 3-5920
BErgen 3-1614 -	REctor 2-6560

Scully Service

USS

UNITED STATES STEEL

INDUSTRY IS ON AN EIGHT-DAY WEEK

Seven days a week America is doing one of the greatest jobs of production the world has ever known. We are living with one part of that job here at Alcoa, where over seventy thousand men and women are producing Aluminum in quantities that were mere fantasy yesterday.

But there's an eighth day tucked in among the few open spaces in the seven-day week. Engineers are able to squeeze in some important Imagineering about post-war products—planning that will help convert war jobs into peace jobs.

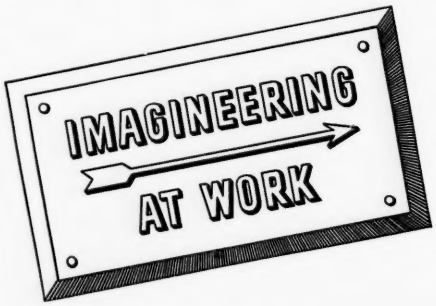
For instance:

Imagine what 1,000 pounds less weight in the automobile of the future would mean in performance, gas economy and tire life. Then engineer it down to the realization that 1,000 pounds *can* be taken off by using, say, 500 pounds of Aluminum per car.

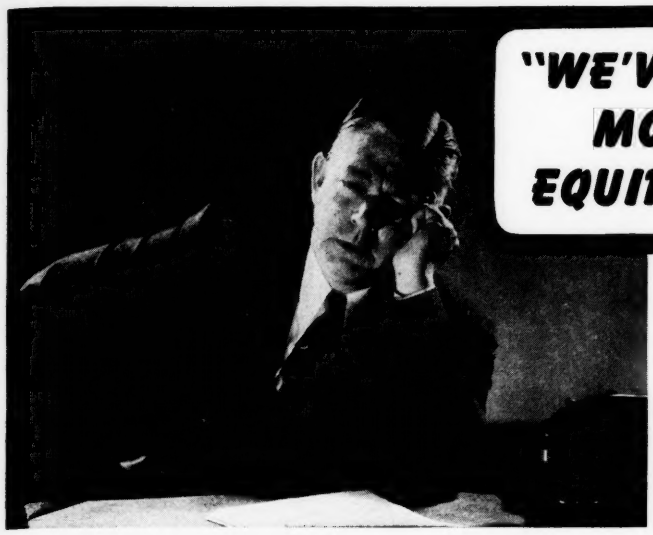
Now translate possibilities such as these into your own business.

Aluminum costs less today. New methods, techniques, processes, and new forms of metal coming out of the war effort will all be available for the as-yet-untold possibilities in tomorrow's peacetime products and peacetime services.

Our eighth day is devoted to helping Imagineers throughout industry use the potentialities of Alcoa Aluminum in bettering the new ideas they are dreaming up. ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM



"WE'VE GOT TO PRODUCE MORE AND BETTER EQUIPMENT!" HE TOLD ME*

*THE REX MAN

—BUT HE "PERKED UP" WHEN I TOLD HIM ABOUT CHABELCO

① **"THAT'S ENOUGH** to make any engineer's hair turn gray," I told this plant engineer. "But every cloud has a silver lining, and I think your problem has a happy ending both from the production as well as from the product standpoint."

② **"WHAT DO YOU MEAN BY THAT?"** he asked. (His company makes heavy construction equipment.) "It's true we're having trouble producing enough—also with our drives when our machines get out in the field. But what can *you* do?"

③ **"HERE IT IS IN A NUTSHELL!** Briefly, I suggest replacing those less durable chain belts on your production line with this sturdy steel chain belt. This Chabelco has more hardness and precision, and is as rugged as a battleship!"

④ **"AND FOR YOUR PRODUCT** I suggest the same. That chain belt you've been using is too light for your drive. Chabelco, at only slightly higher cost, will eliminate all the difficulties you had with customers' objections to frequent repairs."

⑤ **"THE 444 CATALOG** has the story for engineers interested in production and/or design. It also shows just how widely Chabelco has been adopted by the heavy machinery field—excavators, road pavers, concrete mixers, etc."

⑥ **"SOMETHING TO THINK ABOUT,** I'll admit," he said. "If it works, it will be the simplest answer I ever had to one of the most difficult problems I've ever had. And I believe I'm going to try this Chabelco chain belt—and soon!"

For more production today—and a better product tomorrow—consider Chabelco chain belts. And call on the Rex man for invaluable aid in applying chain belts successfully on new equipment that's now on the drawing board. Naturally, orders bearing highest priority take precedence. Chain Belt Company, 1718 West Bruce Street, Milwaukee, Wisconsin.

REX CHAIN BELTS

CHAIN BELT COMPANY OF MILWAUKEE

Baldwin-Duckworth Chain Belt Division, Springfield, Massachusetts • Worcester, Massachusetts
Rex Chain Belt and Conveyor Divisions, Milwaukee, Wisconsin

REX CHAIN BELT COMPANY

Without these

OUR WAR EFFORT WOULD COLLAPSE

FOR many vital war necessities, this nation and our allies are relying on the resources of the South; bauxite from which aluminum is made; motor and fuel oil; sulphur for heavy chemicals; cotton and the products of the mills of the South; fertilizer for the crops for food for our armed forces, civilian needs and our allies, and many other materials in which the South predominates.

Bauxite	100%
Naval Stores	100%
Sulphur	99%
Carbon Black	95%
Cotton Lint	93%
Tobacco	90%
Cotton Yarn	85%
Rice	83%
Fertilizers	70%
Rayon and Allied Products	70%
Natural Gasoline	69%
Crude Petroleum	59%

Without these, our airplane production would be curtailed, our motorized army, navy and air forces would be crippled, our transportation facilities would be more sharply cut, our munitions and explosives production would not meet requirements.

The MANUFACTURERS RECORD has for its objective the utilization of these and other resources of the South to serve the nation in war and in peace.

Nearly sixteen billion dollars have been allocated to the South by the War Production Board. The South's farm income is very likely to exceed four billion dollars for 1942.

Vast engineering and construction projects have brought the awards for 1942 to the highest in history, about four billion dollars.

This year's cotton income will exceed that of any other year since 1928 and the present forecast for cotton production is 13,329,000 bales, which is 220,000 more than the average for the last ten years.

Prosperity always follows population increases. The South during the last two comparable census periods increased 9.5% while the rest of the country only 6%.

In MANUFACTURERS RECORD'S circulation there is the least possible waste for advertisers. We reach practically all manufacturing plants of the South, with an annual production valued at $250,000.00 and upward, including nearly 100 plants that are the largest of their kind in the United States or the world, some of which have an annual production valued between fifty and a hundred million dollars. MANUFACTURERS RECORD being an executives' paper appeals to executives who in the final analysis do the buying.

With new concentrations of population, plants teeming with war and normal production, buying power reaching new high levels, with needs for new machinery, parts, and repairs to keep at a maximum of efficiency; here, indeed, is an advertising opportunity.

Through the MANUFACTURERS RECORD your advertising is directed to a substantial and growing industrial market.

Advertising information at your request.

MANUFACTURERS RECORD
BALTIMORE, MARYLAND

Son...

HE has just turned eighteen. Shaves twice a week and maybe a hair or two is sprouting on his chest. He shies away now when his dad tries to be affectionate and we noticed some lipstick on one of his handkerchiefs after a country club junior dance not so long ago. But it seems only yesterday, perhaps it was the day before, that he was a chubby legged kid swinging from the arch of the doorway, leading to the dining room, in a gadget that was something like a breeches buoy and he was sucking at the end of a turkey bone.

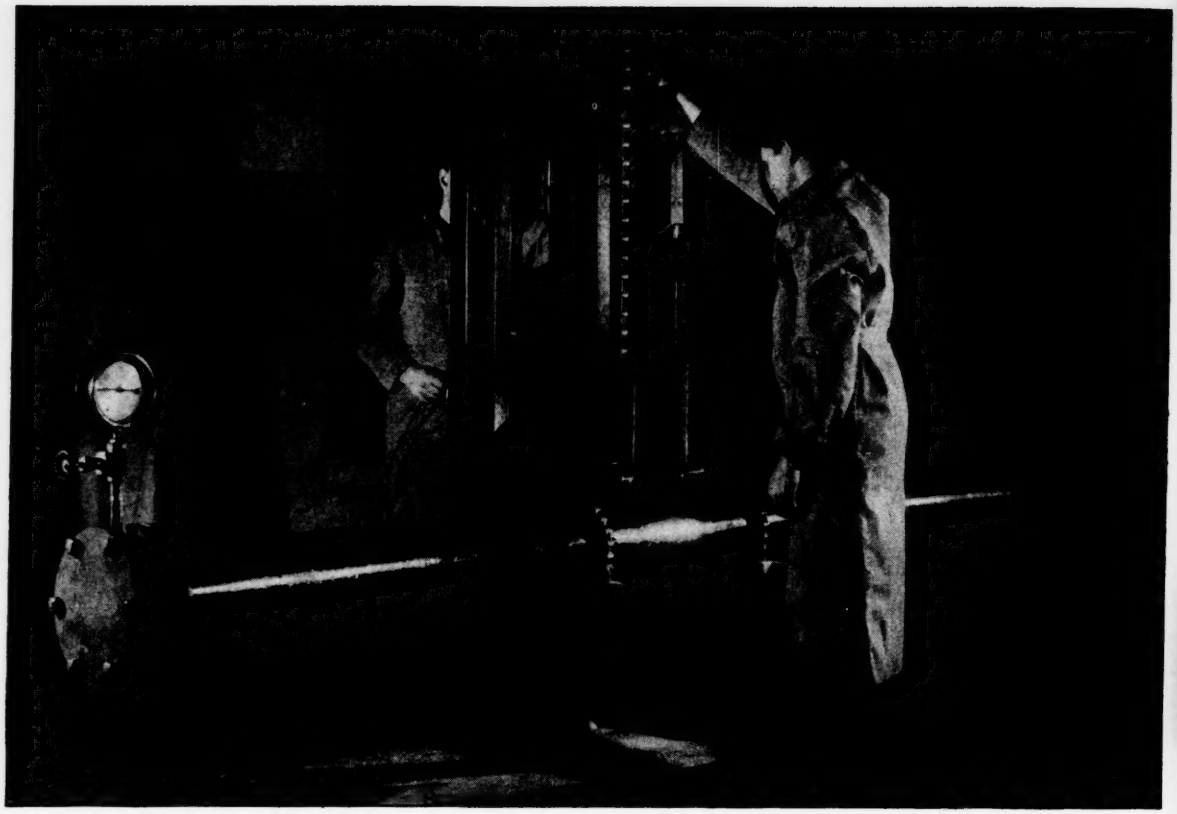
He went back to school this Fall, a tall, athletic lad, budding into manhood, but there was something else on his mind beside the football and hockey teams or the little blonde girl with whom he had "palled" around during the Summer. It seems as though he was listening for a certain call—the Clarion call that poets sing about—and, perhaps we just imagined it, but we thought we saw an upward jutting of his chin, a certain light in his eyes, and a sort of a rearing-to-go expression in his face.

It chilled us a bit in the region of our heart, when we thought of his discarding the sports coat for the "O.D." of the Army or the blue of the Navy. There was a bit of a catch in our throat as we thought of his putting aside his football helmet for one of steel; of his hanging up his hockey stick and reaching for a gun. After all we still regard him as just a little boy.

They tell us that the eighteen and nineteen year old lads are to be called to the service. When that day comes to us there will be prayers, but no tears. We shall not mourn nor shall we be fearful. Rather there will come welling up from our hearts that warm feeling of pride that millions of other parents will sense when their beloved lads marched away. Our lad is no different than the others. We are no different than other loving parents, nor is our sacrifice any greater. They are going to make great soldiers, sailors, marines and fliers out of these youngsters. And they will become a mighty force when they take their places beside their brothers in arms. They too know what they fight for. They too know full well of the sacrifices that must be made before the evil powers that threaten the world can be overcome.

And let us not forget that they are counting on us. They know that we shall not fail them.

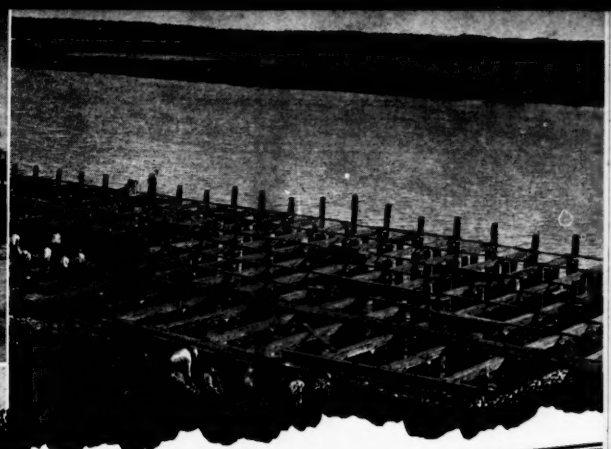
God be with them and their brothers.

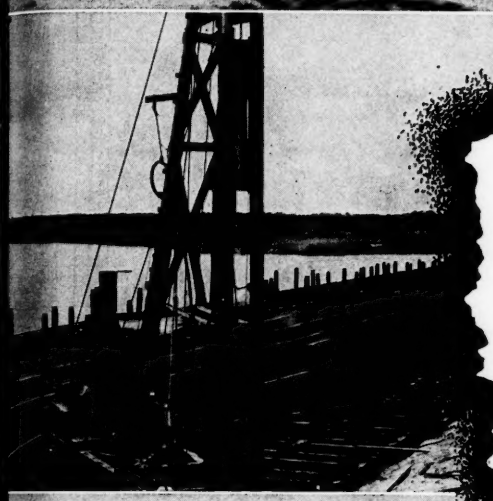


* This illustration shows the "Impact Test" to determine the toughness and ductility of the pipe. While under hydrostatic pressure the pipe is subjected to heavy blows from a 50-pound hammer dropped from successively increased heights. Although not a required acceptance test, it is one of the additional tests regularly made by this Company to further check and maintain the quality of its pipe so that it will adequately meet severe service requirements. *United States Pipe and Foundry Co., General Offices: Burlington, New Jersey.* Sales Offices in Principal Cities.

* One of a series of controls in operation at each of our plants, beginning with inspection and analysis of raw materials and ending with tests of the finished product, all subject to the central control of our headquarters staff at Burlington.

U.S.
cast iron
PIPE
Centrifugally or Pit Cast for water, gas, sewerage, drainage and industrial services.

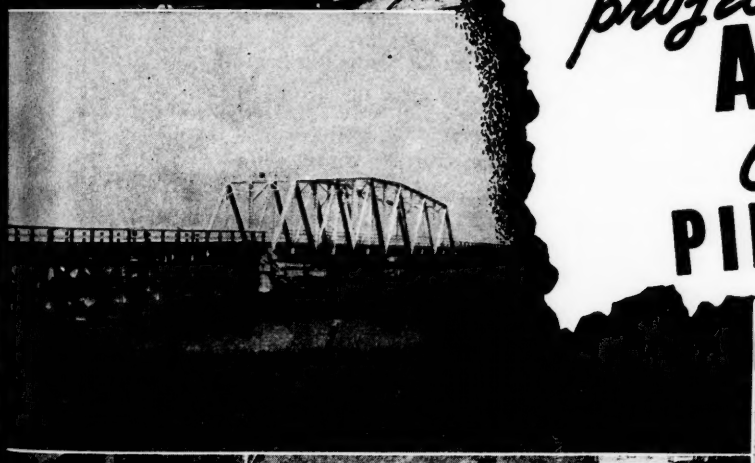


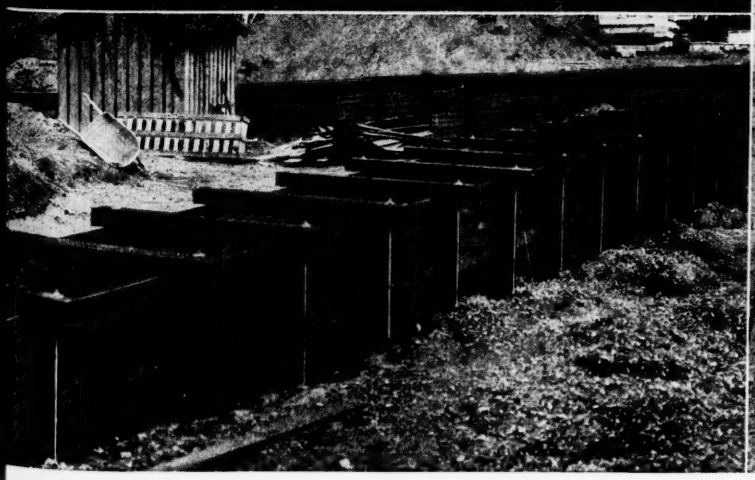


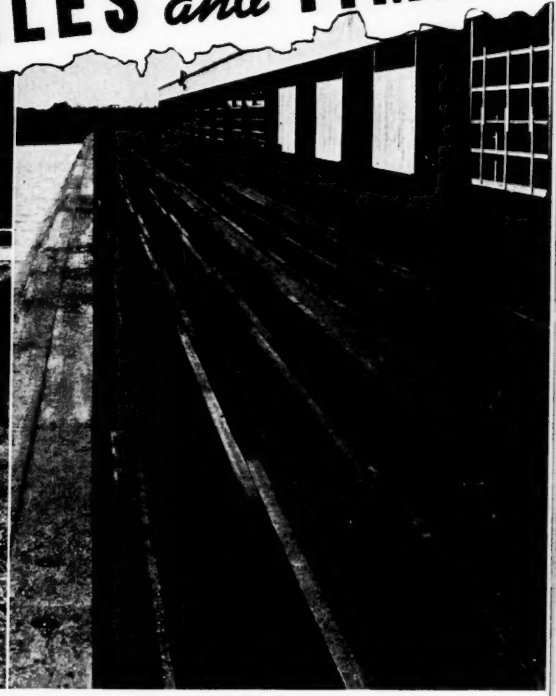
MEMO

For Every Construction Job — foundations, bridges wharves and other timber projects use —

AMCRECO *Creosoted* **PILES** *and* **TIMBER**







LONG LIFE • ECONOMY • RELIABILITY

AMERICAN CREOSOTING COMPANY
INCORPORATED

COLONIAL CREOSOTING COMPANY INCORPORATED

AMCRECO LOWRY PROCESS CREOSOTED WOOD

GEORGIA CREOSOTING COMPANY INCORPORATED

ADDRESS INQUIRIES TO CHICAGO, ILL., OR LOUISVILLE, KY.

RYERSON

Founded in 1842

Completes One Hundred Years of Steel-Service

One hundred years ago, on a bleak October day, Joseph T. Ryerson set out from Philadelphia for the West. On November 1, 1842, after nine days' travel by train, stagecoach and lake steamer, he arrived in Chicago, a small town of about 6,000 and set up his little iron store—the first west of Pittsburgh—and started a business which was destined to grow to be the largest steel warehouse organization in the world.

Through a century of peace and war—good times and bad—Ryerson has proved a prompt, reliable source for steel of dependable quality. From the pioneer establishment of 1842, has sprung a network of ten great steel-service plants, strategically located to serve the principal industrial areas.

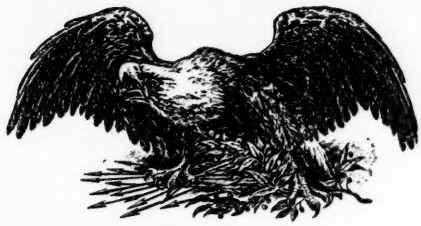
Today the Ryerson organization is in the thick of the war production effort. Emergency calls are coming in for steel to open up production bottle necks and to maintain and repair over-worked plants and equipment. The skill which a century of experience has taught is now under constant pressure to make the *best use* of available stocks.

With this background of service to America, and looking forward to its second centennial, the Ryerson Organization pledges every resource until this war is won.

JOSEPH T. RYERSON & SON, INC.

STEEL FOR IMMEDIATE SHIPMENT

Chicago • Milwaukee • St. Louis • Cincinnati • Detroit
Cleveland • Buffalo • Boston • Philadelphia • Jersey City



AMERICA'S OPPORTUNITY

The outlook for business, or that part of it which is based on the war effort, is good. For the other part, it is confused and deductions are difficult.

There will be plenty of money among civilians, most of whom have not had so much before. Their demands for things they have wanted will be insistent in the face of diminishing supplies. The hope, therefore, for meeting normal needs outside of food would seem to be in substitutes. These are needed in markets that possess great possibilities, and in their manufacture there will be brought about widespread utilization of raw materials not heretofore processed by industry in a large way.

There is thus opened a new frontier of opportunity. This is already seen in the demand for synthetic materials taking the place and meeting the requirements of other products not now sufficiently available. The research that has brought this about has opened a new vista for peace-time industry.

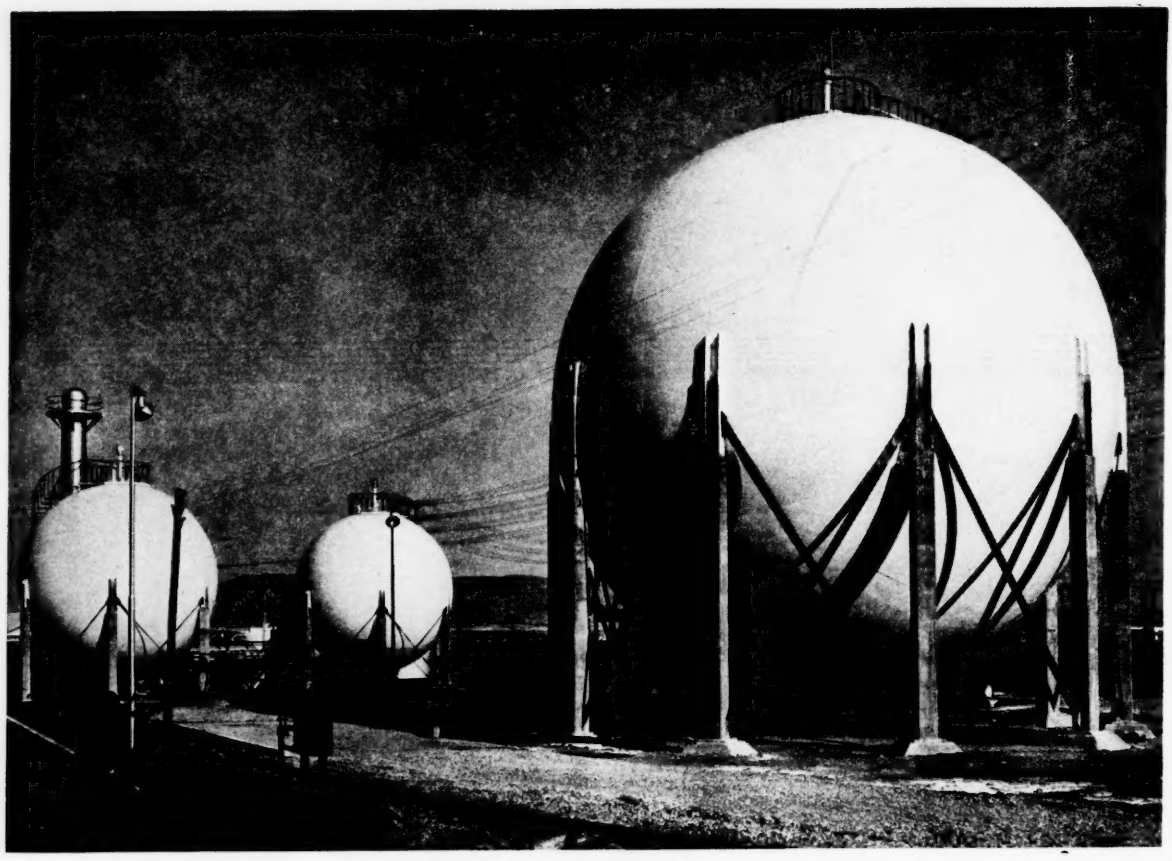
That is not only the hope for 1943, but it is an outlook for the long pull upward. It is well to read what Kettering and Milliken and other scientists say about the future which chemical and engineering wizards are opening up. No one can visualize it without a thrill. This great land which will have such a necessary part to play in the rehabilitation of the world will find its progressive work, its new wealth creation advanced by research going on in coal, minerals, timber and the crops of the farm for the making of products that will cause a greater utilization of our resources than was ever dreamed of in the past.

That is the outlook. That is the prospect that promises to help pay the cost of the war and to help vigorous and inventive America to stand as it always has in the forefront of progress.

But a vigorous and inventive America must have incentive. It must feel that brains, initiative and courage are to be rewarded in the old American way, in blunt words, by the profit system of individual enterprise. Every detour from this straight path leads to state socialism or worse. It is an acknowledgement that the brains of our country only are possessed by the national planners who in turn are made national planners by their ability as politicians to control the mass vote. Ingenious scientists, self effacing payroll producers do not go in for politics but they are the backbone of our nation. They and the millions that work with them are the producers who make our American way of life possible.

Anything that threatens this American way of life, anything that threatens this withdrawal of incentive, threatens to place all of us, business man, farmer, laborer in the class of slaves to rulers who should be our servants.

America can lead to a better world for all of its peoples. It not only can but it must. The opportunity is here. The resources are here. The intelligence is here. But the economic system that produces these things must not be destroyed, as it was in France, by political maneuvering.



PRESSURE STORAGE TANKS have gone to WAR

Hortonspheres and Hortonspheroids are peace time creations for peace time service. They were developed after World War I when everyone was trying to make the world a better place to live. Now—to serve the same purpose—they have gone to War.

. . . . in Powder Plants

Hortonspheres provide an economical means of storing anhydrous ammonia in relatively large quantities under pressure. Installations are usually designed to operate at 50 lbs. per sq. in., sufficient to materially reduce the evaporation losses that would otherwise take place.

. . . . at Lighter-than-air Bases

Helium can be handled and stored economically and safely in Hortonspheres. A single installation will release for other service many cylinders needed for transportation purposes.

. . . . for Synthetic Rubber

These wonder plants that have Mother Nature's rubber trees slated for obsolescence need pressure storage at every step from the charging stock to the magic Butadiene. Spheres of different sizes for different pressures, usually from 50 to 100 lbs. per sq. in., will keep streams of the vital ingredients for synthetic rubber flowing smoothly and at top speed to the rubber making units.

. . . . making Aviation Gasoline

Spheres and spheroids are commonly used for handling and storing charging stock and finished aviation gasoline, as well as for blending this essential product. They prevent evaporation loss which so often results in the lowering of product quality as well as volumetric loss.

Yes! In these and many other fields, pressure storage has gone to War.

CHICAGO BRIDGE & IRON COMPANY

Birmingham	1530 North Fiftieth Street	New York	3313-165 Broadway Bldg.	Philadelphia	1619-1700 Walnut Street Bldg.
Houston	5614 Clinton Drive	Cleveland	2216 Guildhall Bldg.	San Francisco	1040 Rialto Bldg.
Tulsa	1611 Hunt Bldg.	Chicago	2106 McCormick Bldg.	Washington	330 Bowen Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

MOULDERS OF CIVILIZATION

Machiavelli, shrewd and crafty man that he was, was a keen observer of mankind. In one of his writings he ventures to classify his fellow men into three groups according to the level of their intelligence.

The first group is made up of those excellent souls who, by virtue of their own iniative and because of their natural endowments, are able to achieve an understanding of the affairs and relations of men with each other and of man with the world in which he lives. The second is made up of those others who are unable of themselves to be discoverers of facts or of progress but who are capable of intelligent understanding when such things are explained to them by others. The third class is made up of those who can neither create nor understand the creation or demonstration of others.

According to Machiavelli the first class is rare and altogether excellent. It is composed of the trail-blazers of human progress.

The second class is also excellent for though they are not in themselves intellectually productive they reproduce understandingly and thus intelligently aid progress.

The third class is made up of those who are neither producers nor reproducers of intellectual or scientific achievement, but parasites living—very often quite profitably—off the intelligence of the other two groups.

While it is true, there are many border line cases, we venture to say that, by and large, the crafty old political philosopher was right. In the light of present day democratic institutions, his characterization would belittle the importance of the third class. They are the shapers and molders of civilization and civilization's destiny, mere rubber stamps though they may be.

This class is important because it is so numerous, and numbers are very important in a democratic republic. Fortunately most of this third class is made up of people who are sincere and honest. They want to do what is right, but because they have little mental understanding, they are motivated by their emotions; and the appeal to the emotions is almost always stronger than an appeal to reason. It is certainly stronger when reasoning power does not exist.

The greatest of all group emotional appeals are "fear," "greed," and "prejudice." As a result this third class is preyed upon by leaders who stoop to exploit its emotions. Its leaders must stoop morally and intellectually in order to conquer and to lead.

Now observe how these considerations force the conclusion that this third class described by Machiavelli has really bred the world's dictators. Because they can be reached and influenced by fear and prejudice they make firm and often rabid partisans. They are easy to organize for special and often selfish purposes. They are the world's greatest "joiners" and once "joined" their minds are closed to all outside influence. The group follows a leader.

Because this group is largely governed by emotion rather than understanding its members have a great self assurance. They are positive of themselves, of their own traditions and surroundings, of the righteousness of their causes, of the virtues and goodnesses of the groups with which they are affiliated. While they may question many things, and so give an appearance of intellectual independence, they never question anything that has been taught them as unquestionable.

People in this class often become rich and powerful because of the appeal to "greed." So while they all remain sheep, some of them become "bellwethers." No matter to what position members of this class rise, they are still moved by their emotions and they are still a majority of the citizenry. They are the challenge to representative political and economic institutions and to intelligent and honest leadership.

SYNTHETIC RUBBER from SOY BEANS

COMMERCIAL production of synthetic rubber from soy beans was started recently for the first time anywhere in the world by Reichhold Chemicals, Inc.

This chemurgic rubber, called Agripol, has been under experiment by Reichhold and the U. S. Government for more than a year. Present production capacity for the manufacture of Agripol in Reichhold plants is approximately a quarter of a million pounds a month, to be increased to two million pounds per month by February, 1943, and to 4,000,000 pounds per month by May, 1943, provided raw materials are allocated for the purpose and permission is granted by the War Production Board for a modest amount of additional equipment. Further expansion during 1943 will bring the total annual production up to a minimum of 50,000,000 pounds.

At the present time Agripol is not offered as a substitute for rubber in the manufacture of tires, Henry Reichhold, chairman of the board, emphasizes. But its use for innumerable mechanical products of a critical nature has been demonstrated to a sufficient degree to absorb the company's entire 1943 contemplated output, resulting in an immense conservation of industry's supply of natural rubber. The mechanical products for which Agripol will be used include: gaskets for food closures, industrial gaskets, belting, insulating mats, hose linings, adhesives, many latex products, proof goods. Direct military uses for Agripol include numerous gadgets, insulating parts, shock absorption pads, gaskets, etc., employed in the manufacture of aircraft, naval vessels, cargo vessels, motorized military vessels, motorized weapons, chemical warfare supplies, ammunition cases and many miscellaneous facilities.

Henry Reichhold (right), chairman of the board of Reichhold Chemicals, Inc., and Clinton Braidwood (left). The company's rubber expert, examine some of the new commercially produced Agripol —synthetic rubber produced from soy beans.

In certain of its physical properties, Reichhold frankly states, Agripol is inferior to natural rubber, particularly where high tensile strength and resistance to severe abrasion are desirable properties, as in automobile tires. But it is pointed out that tires have never accounted for more than 50 percent of the United States' rubber needs. In the field of static rubber, Agripol is expected to prove a war and peacetime boon, such as in molded products where high tensile strength and great elongation are not essential. This is the field in which Agripol will release an equivalent amount of natural rubber.

Long tests have proven that in flexibility at low temperatures, Agripol is the comparative equivalent of natural rubber for all practical purposes. In aging tests it behaves in superior fashion to natural rubber, is less suseptible to attack by the elements and greatly surpasses natural rubber in resistance to oxidation.

A fortunate property of Agripol is its adaptability to existing equipment in rubber fabricating plants since it vulcanizes at about the same temperature range as natural rubber and can be worked on existing rolls and formed in existing molding equipment.

Principal raw materials employed in the production of Agripol come from the American farm —soya bean oil and ethyl alcohol, although only a small percentage of ethyl alcohol is used. The fatty acids extracted from the soya bean oil, when polymerized with ethylene glycol (obtained through the dehydration of ethyl alcohol) produce Agripol.

In compounding the finished rubber, the customary fillers used in compounding natural rubber are employed, such as sulphur, carbon black, zinc oxide and an appropriate plasticizer.

Meanwhile, the Government has

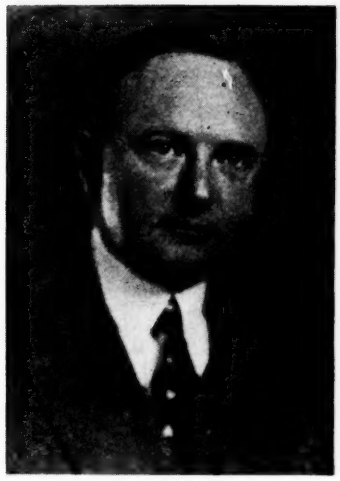
(*Continued on page* 58)

THE FEDERAL MANPOWER MUDDLE

By

HARRY FLOOD BYRD

U. S. Senator from Virginia



Harry Flood Byrd

AMERICA today is faced with the most alarming manpower shortage in history. Civilians are being transferred from peacetime business into wartime industry. Women are being urged to fill the ranks of industry left vacant by those who are entering our armed services. Even children are being considered as possible employees in work which can utilize their skills and thus relieve older, trained craftsmen for needed work elsewhere. In a word, every possible source of manpower supply is being drained to the dregs in an attempt to secure workers to produce materials which will speed the flow of war goods.

Yet today there is a source of supply which, far from being tapped, is an ever-increasing, still swelling reservoir of stagnant manpower. That source is the Federal government of the United States. It can be said unequivocally that our own government is the chief offender in the entire country from the standpoint of wasting and hoarding manpower. **Moreover, shocking as it may sound, the statement may be made advisedly that at no time in the entire history of mankind has there been so much waste, so much inefficiency, as now exists in the multitude of bureaus which now sap the strength of our nation.**

Today there are more Federal, State and local employees than there are soldiers, sailors and marines in the armed forces. Of this vast army of civilian workers, 2,606,300 were to be found in the Federal employ as of August 31, 1942, according to the latest reports. And the number has been increasing, not diminishing. Since Pearl Harbor the figure has risen at a rate of over 100,000 a month, until by August the monthly increase had reached the alarming total of 194,000. On the basis of a 44 hour working week and a four week month, this means that the Federal government is adding employees at the rate of 1,100 a working hour, or over 18 a working minute—unless the rate has been accelerated!

By January 1, 1943, perhaps sooner, the number employed by the Federal Government alone will reach 3,000,000, despite the fact that the very agencies and departments which are most culpable in the hoarding of manpower are feverishly crying for more men to bolster our armed forces and more workers to speed our industries. In view of the present manpower shortage, if for no other reason, it is high time that this march on Washington be halted and its ranks be reorganized.

In peacetime such an arrant waste of personnel and public funds is to be criticized severely. How much more inexcusable—even criminal—is the profligacy with which nonessential activities of the Government drain the nation of its desperately needed manpower.

A comparison between the number of civil service employees during the last war and those of this war reveals the only too apparent overstaffing and inefficiency of government agencies today. For example, on Armistice Day, 1918, there were 917,760 civilian Federal employees. Today there are three times that many. In 1918 there were 2 civilian Federal employees for every 9 soldiers. Today there are 5.

The increase in personnel has been accompanied by a similar prolific spawning of agencies. In 1918 there were just 30 of these. Today there are 81 distinct agencies, many of which contribute in no direct way to the war effort. Branch offices—numbering a total of 1,594—have mush-roomed to astounding proportions in every conceivable nook and corner of the country, employing large staffs and frequently unnecessary personnel. Many of these employees—in fact, many of these offices—duplicate and overlap the functions of others. And as the number still increases, it is too much to expect the enormous cost and confusion of these regional and branch offices not to do likewise.

The failure of the national government to adapt itself to wartime economy and to manpower shortage is nowhere more evident than in the departments most concerned with the war effort. Today there are approximately 1,200,000 civilian employees in the War Department, as compared to 64,321 civilians thus engaged on July 1, 1917. Today there are approximately 500,000 civilian employees in the Navy Department, as compared to 110,823 on December 31, 1918. To-

(*Continued on page* 56)

TAMPA LAUNCHES 7 SHIPS on DECEMBER 7

STARTING at 9 o'clock Monday morning, December 7, the Tampa Shipbuilding Company launched seven ships on the anniversary of Pearl Harbor.

Included in this super-launching program were six Minesweepers and one Destroyer Tender, the latter being the largest and fastest ship ever launched in the Gulf and said to be the largest ship ever to be launched south of Newport News on the Atlantic Coast.

Six ships went sliding down the ways within three hours as a Minesweeper was christened every 40 minutes, starting at 9 o'clock. Mrs. Elizabeth D. Kauffman, wife of Rear Admiral J. L. Kauffman, Commandant of the Seventh Naval District and Commander of the Gulf Sea Frontier, christened the USS PIEDMONT at 3:30 in the afternoon, this being the feature of the all-day launching program.

George B. Howell, President of the Tampa Shipbuilding Company, presided at the launching ceremonies for the USS PIEDMONT. For the first time since the U. S. entered the War, all of the more than 10,000 workers were admitted to the Yard for the launching, and each worker had the privilege of bringing one guest, so the biggest crowd ever to see a launching in Florida was on hand when the Tasco gates opened at 2 o'clock Monday afternoon. Only a limited number of guests witnessed the launchings of the Minesweepers in the morning.

When the USS PIEDMONT hit the water a few seconds after 3:30 that afternoon, Tampa Shipbuilding Company had established a record in launching ships on the Gulf, as the PIEDMONT was the 11th ship to slide off the Tasco ways in the last 51 days.

The four ships previously launched were all minesweepers—two went down the ways on October 18 and two more were pushed ahead of schedule so they could hit the water on November 1.

Record for one day of fighting ships by single yard includes destroyer tender that is largest ship built south of Virginia

Tampa Shipbuilding Company and its thousands of workers by this mass launching gave concrete evidence to the Axis that this Country can not only meet so-called impossible shipbuilding schedules but also exceed schedules which two years ago were considered beyond the realm of possibility.

Tasco has one of the most compact yards in the Country. It more than trebled the number of its employees within the past 14 months despite the fact that Florida is not an industrial State and there was a marked absence of skilled workers available.

P. B. Brill, Vice President and General Manager of Tasco, assisted by M. W. Powers, Assistant General Manager; and J. W. Lynch, General Superintendent, had done a swell job in getting seven ships on the ways ready to be launched in one day.

Men in the Yard who had worked hard to get these ships ready ahead of schedule consider this super-launching program a tribute to the three top-flight executives, George B. Howell; Walton N. Hicks, Assistant to Mr. Howell; and J. W. Gray, Secretary and Treasurer of the Company; and to the three above-named executives responsible for the ship production program.

Today, Tasco is the State's largest war industry and has a backlog of more than $180,000,000 which includes contracts calling for launchings many months in the future. Captain F. M. Earle is Supervisor of Shipbuilding for the U. S. Navy in the Tasco Yard, and Commander H. W. Pillsbury is the Assistant Supervisor.

In addition to expending their efforts to get these ships launched ahead of schedule, Tasco workers voluntarily authorized the Company to deduct one day's pay for additional War Bond purchases on Pearl Harbor day. Executives as well as men and women on the

(Continued on page 56)

With eleven ships launched in 51 days, Tampa Shipbuilding Co., established what is believed to be two new records. One was the launching of seven ships at one yard in one day and the other was in launching the largest ship ever built south of Virginia. 1. ***The U.S.S. Agent, a minesweeper, launched November 1, 1942.*** 2. ***Mrs. R. E. L. Chancey, wife of Tampa's mayor, christens the U.S.S. Apex, second of six minesweepers launched on December 7, the anniversary of Pearl Harbor.*** 3. ***The U.S.S. Arch, another of the minesweepers launched on December 7. Keels for six new minesweepers were laid within 15 minutes after the others were launched.*** 4. ***The U.S.S. Piedmont, destroyer tender and largest ship ever built south of Virginia, was christened by the wife of Rear Admiral J. L. Kauffman, commander of the Gulf Sea Frontier.*** 5. ***The U.S.S. Alchemy, another of the minesweepers launched December 7.*** 6. ***Mrs. Ann M. Kearney, a company employe and widowed mother of an Army airman lost in action in this war, christens the minesweeper U.S.S. Arch on December 7.*** 7. ***The U.S.S. Adopt, the first minesweeper of the eleven ships launched in 51 days, went down the ways on Oct. 18.***

[Photos 2 to 6 Official U. S. Navy]

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RAYON FIGHTS ON TWO FRONTS

By

WILLIAM C. APPLETON

President, American Viscose Corporation

UNITED States production of rayon in 1942 will approximate 625,000,000 pounds, setting a new production record for the industry. The increase in production was moderate as compared with the previous year, since the industry was not able to obtain new equipment and machinery because of war demand for metals. Output in 1941 amounted to 573,000,000 pounds, and in 1940 to 471,000,000 pounds, these figures indicating the trend of production in recent years.

It is not generally realized that rayon is produced in this country in two major forms—continuous filament rayon yarn and rayon staple fiber. The yarn is the form in which rayon was first produced in the United States, and until about 1930 was the only type of rayon manufactured in any quantity. Rayon staple fiber consists of short rayon fibers, usually from 1 to 8 inches in length, from which the so-called "spun rayon" yarns and fabrics are made.

Spun rayon has a versatility that has been an important factor in broadening the textile field. It resembles cotton, wool, linen or silk, according to the size of the filament, length of the fiber, and the method of spinning.

Of the total 1942 output, about 470,000,000 pounds consisted of continuous filament yarn. This compared with 451,000,000 pounds in 1941 and 390,000,000 pounds in 1940. The balance of the production, approximately 155,000,000 pounds, consisted of rayon staple fiber. The 1942 output of rayon staple fiber compared with a production of 122,000,000 pounds in 1941 and of 81,000,000 pounds in 1940. These figures show that one domestic output of this useful textile fiber has nearly doubled during the past two years. This rapid increase has been due largely to the continual development of new uses for this product in fabrics for men's and women's wear and in such other diversified articles as rugs and carpets, blankets, towels, tablecloths, sweaters, hosiery, draperies and upholsteries.

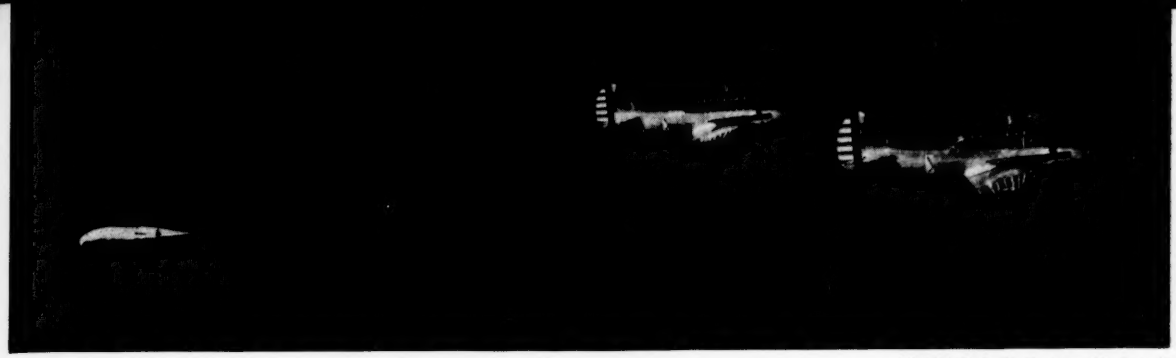
These figures also reveal that rayon under normal peacetime conditions is today the second most important textile fiber consumed in the United States. In 1940, for example, this country consumed approximately 4 billion pounds of cotton, 400 million pounds of wool, and 36 million pounds of silk. Rayon today, therefore, is second only to cotton under normal conditions.

Today's production of rayon is being divided between war and civilian uses. The fiber is fighting on the world-wide military front and on the home front. On the war front it is going into a number of vital articles of military equipment, while at home it is providing a large proportion of the country's essential civilian clothing and is competently replacing fibers such as silk and linen that previously were imported. In this way it is helping many American businesses, whose supplies from abroad have been cut off, through the present transition period.

Top—The raw material from which rayon is made; at left is a log of pine or spruce; at right is cotton, cotton linters being the source of much of this country's cellulose for rayon. Bottom left shows rayon being wound on cones.

Wartime Uses of Rayon

Even before Pearl Harbor, the gradual expansion of our armed forces created a demand for rayon for use in several important types of military equipment. These included rayon cords for heavy-duty airplane and other tires and self-sealing gasoline tanks. During 1942 the use of rayon in military equipment increased to a very considerable extent, as the strength and other properties of the fiber became more generally recognized. New uses included aerial cargo delivery parachutes, fragmentation bomb chutes, parachutes for dropping flares to light up targets during night bombing raids, parachute



[Official Photo U. S. Army Air Forces]

United States flyers are trained in gunnery practice to shoot shown Messerschmitts and Zeros with the aid of rayon aerial tow targets like that shown above. Below—Cross section of heavy-duty truck tire containing tire fabric made with extra strength rayon yarn. In the background is a piece of tire fabric which is put through a rubber treating process and is then built into the tire between layers of rubber.

shroud cords and tapes and aerial tow targets used in aerial gunnery practice. The use of rayon for covering electric wires in submarines and other naval vessels, and in bombers, fighting planes and tanks became of greater importance. Water-repellent rayon paulin cloths for covering and protecting airplane motors were developed and ordered by both the Army and the Navy.

The reason for the adoption of rayon for parachute shroud cords and tapes illustrates an important though little known fact about rayon yarn. This is that rayon yarn increases very measurably in strength when subjected to sudden violent shocks or strains, such as those caused by the weight of a parachute jumper at the moment when the parachute first opens up.

One of the most important war developments of the year, insofar as rayon was concerned, was the Government order issued late in October to convert certain existing manufacturing facilities making standard rayon yarns to the production of extra-strength yarns for use in tires for planes and Army motorized equipment. The aim of this order was to increase the output of extra-strength viscose rayon yarns by 50,000,000 pounds a year to achieve a total annual production of approximately 100,000,000 pounds.

Lieut. General Brehon H. Somervell, Chief of the Service of Supply, in recommending the conversion order to the War Production Board, stated that the Army is now using extra-strength rayon in aircraft tires, bullet sealing tanks, and combat tires. It has found, he continued, that this yarn is necessary in airplane tires because of its lightness and strength, and in combat tires because of its ability to withstand the high temperatures which are generated in these tires in flexing due to their extreme thickness.

It may be pointed out that rayon tire cords are not a wartime development, but had been in use for several years, chiefly on commercial buses and trucks, before the entry of the United States into the war. Actual commercial experience with such tires was exceptionally interesting. Thus, a transcontinental bus line reported that it got some 300,000 miles on a set of rayon cord tires with seven retreads. Partly due to the smoothness of the rayon yarn, less internal frictional heat is developed so that there is less deterioration of the rubber and the tire fabric on the hard "murder runs" of heavy trucks and buses. The tires last longer and give correspondingly higher mileage. In consequence rayon cord tires can be made with thinner walls, entailing a saving in the amount of rubber required per tire. Engineers estimate that for every 1,000 pounds of extra-strength rayon yarn used there is a saving of more than 400 pounds of rubber.

Good Neighbor Export Shipments

Under the provisions of the State Department's Good Neighbor Policy, which aims to increase economic collaboration and good will between the two Americas, United States rayon producers during 1942 set aside each month 4 per cent of their spindleage production of rayon continuous filament yarn for export to the Latin American countries.

The intention, in determining the amount to be made available for export, was to provide the Latin American countries with a substantial portion of the rayon yarn which they formerly imported from other sources, chiefly Great Britain, Japan, Italy, Germany, Switzerland, the Netherlands and France. It was believed that this would help in considerable measure to provide their rayon weaving and knitting establishments with needed material, while at the same time it would not work too severe a hardship on the United States textile industries dependent on rayon yarn.

(Continued on page 52)

XUM

MECHANICAL COTTON PICKER AVAILABLE AS LABOR SAVER

Machine ready for use if government sees need and allocates materials

ANNOUNCEMENT that the International Harvester Company has now developed its mechanical cotton picker to the point where, should the government desire, the machine could be utilized as an important wartime labor-saving factor in the man power situation, was made recently by Fowler McCormick, president of the company.

For generations the harvesting of cotton has required proportionately more human labor than any other agricultural crop. Now, when the nation's need for manpower is the greatest it ever has been, millions of men, women and children must work for several months each year to harvest the cotton crop.

"The International Harvester Company has been experimenting with mechanical cotton pickers for approximately 40 years," McCormick said. "It has proved to be the most difficult designing and engineering job in the modern history of agricultural machinery. Up to now we have never said that we had a successful cotton picker.

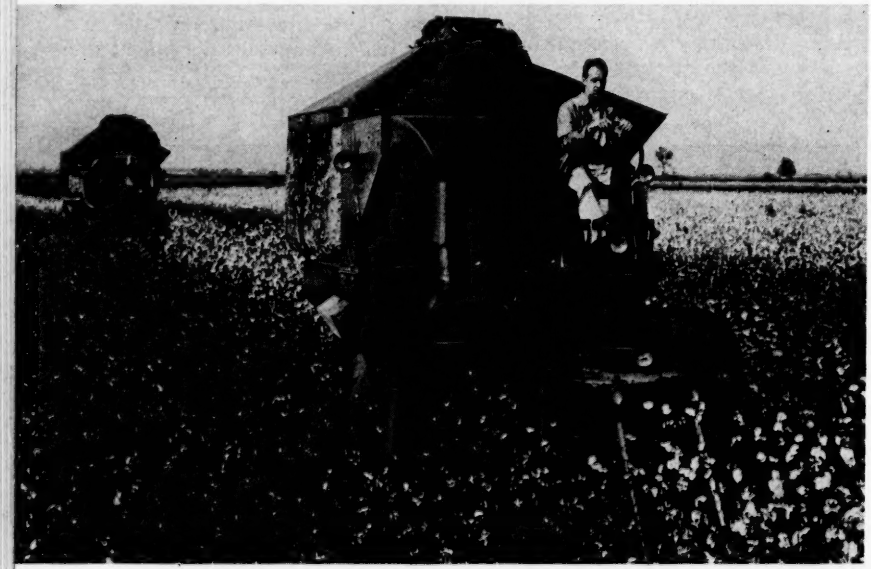
"We are now ready to state that our particular type of mechanical cotton picker has been tested exhaustively, and we know that it will pick cotton profitably under the conditions prevailing in the principal cotton growing areas of the country. We do not claim that it will pick cotton profitably throughout all the varying conditions to which the growing of cotton is subject in this country.

"For the present, the operation of the machine should be restricted to districts where neighboring cotton gins have been equipped with cleaning and drying machinery selected for the processing of machine-picked cotton. Some such equipment has now been developed and is in use, and more of it is procurable from manufacturers of drying, cleaning and ginning equipment. Likewise, the picker should be operated where proper service for it is available.

"In its present state the cotton picker represents a rather large capital investment for the owner of a small cotton tract. But if used on several such tracts, thereby providing sufficient total acreage to keep the machine occupied, it would be economically advantageous. Such has been the history of most of the more complicated farm machines. At first they were economical only for the owners of individual larger farms, or for groups of smaller farms where the machine was used by the whole group. We know that the basic mechanical principle of our picker is sound and that it works. Naturally, additional refinements will come with time but we are certain that it is a commercial machine right now in its present form.

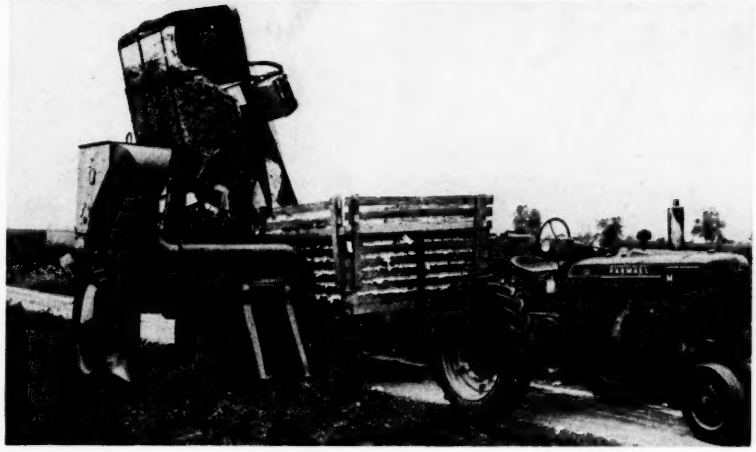
"The machine can now be put to use where the size of the operation justifies, and where the proper ginning equipment is available. The machine has been fully tested in the lower Mississippi delta in the states of Mississippi and Arkansas, in some sections of Texas, and in the long-staple cotton growing section of Arizona. The machine fits the needs of those areas, and can be used now in any other similar areas where proper ginning facilities are available and the size of the cotton plants ranges from 2 to 4-½ feet in height.

"In all such areas the machine



Two cotton pickers working on the Hopson Planting Company's plantation near Clarksdale, Miss. The photo shows the effectiveness of the picker in contrast between the picked and unpicked portions of the field. The first picker is driven by Fowler McCormick, president of the International Harvester Company.

Top—A three-quarter side rear view of the picker showing the location of metal basket for holding the cotton in relation to the driver's seat. Below—The picked cotton being dumped from the metal basket into a farm trailer preparatory to being hauled to the gin for processing. The metal basket is lifted for dumping by means of a hydraulic power lift. It requires about 30 seconds to dump the basket.



could be an important factor in the wartime man power situation. We regard it as fortunate that perfection of the picker has coincided with the great present wartime need to solve a critical agricultural man power situation.

"It is difficult to make an accurate specific statement on the amount of cotton the machine will pick in comparison with hand pickers, because of widely differing conditions under which cotton is grown, differing yields per acre, size of plants, type of fiber, etc. From the tests we have made, however, we know that the machine will pick as much cotton in a day as can be picked by from 50 to 80 hand pickers in the same field.

"Because this is a machine not previously produced, we have no government allocation of materials to build any for sale in 1943. We fully recognize that the government must allocate critical materials where they are most needed today for the war effort. Therefore, we have planned to ask only for materials to make a dozen or so pickers for next year unless the government should feel that greater quantities were needed. In that case we would, of course, do everything possible to carry out whatever program the government suggested."

The cotton picker is a machine attachment designed for mounting on the Harvester Company's medium-sized tractor, which provides the power for the picking operation.

The picking element of the machine consists of a drum box housing two drums, each containing a series of vertical shafts. On these shafts a large number of revolving spindles, which gather the cotton, are mounted. These gathering spindles enter and retract in the cotton plants at the same forward rate of travel as the tractor itself.

As the spindles enter the plant they contact the open bolls of cotton and spin the cotton out of the boll without disturbing the unopened bolls or otherwise injuring the plants. After the cotton fleece is wound on the spindles, it is removed by rubber strippers or doffers.

After removal from the spindles, the cotton is conveyed by vacuum to a separating chamber, and then by air pressure produced by fan equipment to a large wire netting basket supported on a light framework on top of the machine, where it is held until ready to be dumped for trucking to the gin.

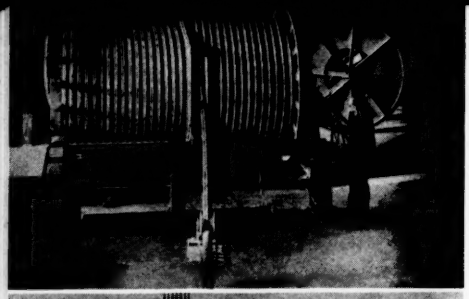
When the tractor is used with the picker the high rear tractor wheels become the front wheels of the machine and the customary forward speeds of the tractor are available for traveling in the reverse direction.

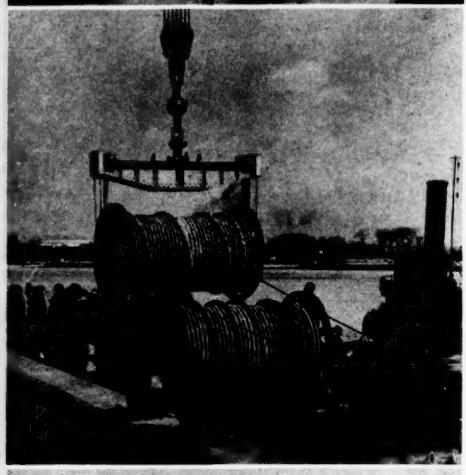
The driver is the only attendant required to operate the machine. He sits comfortably above the drum box where he has a full view of the row of cotton being picked, which flows continuously through the drum box.

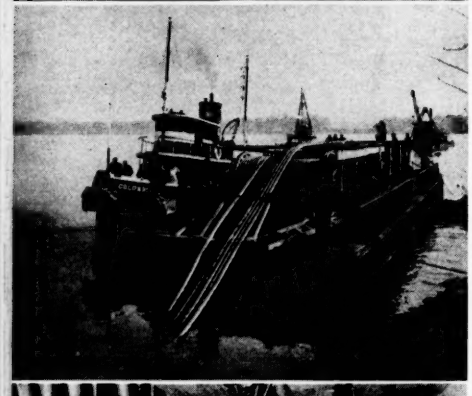
Tests made with the International Harvester mechanical picker this year not only showed a quality of picking satisfactory to the plantation owners who cooperated in the tests, but they were also convinced by conservative crop accounting that machine-picked cotton, processed in modern gins, represents a considerable saving over cotton picked by the hand-picking method. A number of planters, faced next year with a shortage of field labor, have urged the company to supply them with mechanical pickers for use on their next year's crop.

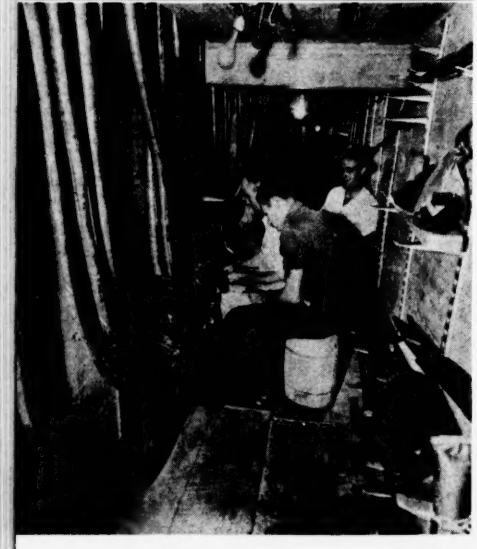
XUM

INSTALLING a GIANT SWITCHBOARD









THE world's largest private branch exchange switchboard has now been installed for the War Department's new Pentagon Building in Arlington, Va. Manufactured by the Western Electric Company, the big "PBX" is linked with telephones in official Washington, as well as with the rest of the nation's telephone system, by twelve armored submarine cables which lie across the bed of the Potomac River. These cables were installed recently by the Chesapeake & Potomac Telephone Company—a job described as the largest single outside plant-project in the company's history, as well as the largest number of submarine telephone cables ever laid at one time.

The twelve submarine cables—each with an overall length of 2,000 feet and weighing a total of 250 tons were manufactured at Western Electric's Point Breeze Works, near Baltimore, on the largest cable-armoring machine ever constructed. Eleven of the cables carry 918 pairs of wire each, while the remaining one carries 460 pairs, but all of them are sheathed against the hazards of underwater service with successive protective layers of lead, jute and steel wire armoring. Wound on huge reels, the cable was transported from Baltimore down the Chesapeake Bay and up the Potomac on barges equipped with special mounts.

When the heavily-laden barges reached Arlington, they moved slowly cross-river, paying out the cables into predredged trenches on the river bottom. A diver followed in the wake of the barges and guided the cables as they settled into their previously prepared resting positions.

Top—Coated with anti-stick, the cable destined for installation across the Potomac river is reeled onto the large drum at the take-up end of the wire armoring machine, largest in the world. Top center—loading the cable onto a lighter at the Baltimore plant. Bottom center—starting to pay-off six of the twelve cables from the Virginia end of the 2000-ft. trench dredged in the bed of the river. Bottom—splicing the incoming cable to interior cables at the War Department's new $35,000,000 Pentagon building in Arlington.

Meanwhile, within the partially completed Pentagon Building itself, installers were working 'round-the-clock to complete the installation. In full operation, the switchboard will be staffed by 250 telephone people who will handle the 125 switchboard positions and the 36 Information positions. Operators give service on all calls from "outside" stations. Inter-office calls, except those requiring "information," are automatic. The exchange will serve over 12,000 dial telephones within the $35,000,000 War Department structure.

To supplement the Pentagon board, a "satellite" board, completely automatic in operation, has been set up in Washington proper to serve the more than 4,000 War Department telephones which will not be moved to the new building. When the entire communications system has been completed, it is estimated that the big switchboard and its smaller satellite will serve more than 20,000 telephones, including extensions.

Because of its unusual size, the new switchboard called for much original development work. In a normal installation of this type, an operator can reach no more than 10,000 multiple and trunk "jack" connections, while the requirements of the new switchboard make it necessary for her to reach as many as 13,000 station lines, as well as 2,280 multiple trunk lines. In order to accommodate this unusually large number of extension lines, Bell Telephone Laboratories designed a system for completing calls as follows:

Operators in the Pentagon Building, instead of being provided with a multiple jack for each line—prohibitive in an installation so large—are provided with

(*Continued on page 56*)

NEW ELECTRIC PLANT BRINGS ARKANSAS OTHER INDUSTRIES

WORK is progressing rapidly on the Arkansas Power & Light Company's $3,000,000 electric generating station in the "sour gas" fields of South Arkansas, according to C. S. Lynch, executive vice-president of the company. The plant will have a 30,000 kilowatt generator, and will be so constructed that three additional units can be added easily.

J. P. McNulty, construction contractor of Pine Bluff, Arkansas, is now doing the concrete work at the station. A large steel warehouse has been erected at the plant site while foundations for the plant have been poured and before January 1, walls of the power house will be well up.

Being built two miles east of Stamps, Arkansas, on the main line of the Cotton Belt railroad, which has constructed a spur track to the plant site, the plant will be unique in design. The generator will be in the open on the roof of the powerhouse and will be encased in a weather proof metal container.

Arkansas Power & Light Co. made a substantial contribution to the development of its state when it decided to build this plant. A few months before construction started a new gas field was discovered in South Arkansas. This McKamie field had a high pressure gas, but the gas contained a high percentage of sulphur, making it unavailable for commercial use without first being cleaned or "sweetened." In fact, the natural gas was more a by-product and sulphur the principal product of the field. Because of the then limited market for sulphur, it was not economically feasible to dispose of the sulphur.

The gas contained a small amount of distillate that was needed very badly for war purposes. So to get as much of this distillate as possible, a limited amount of gas was permitted to be removed from the ground, the distillate extracted, and the wasted gas burned in the air.

When the power company decided to build its power plant, this provided a market for the gas and made it feasible to "clean" it to be sold. Carter Oil Co., a subsidiary of the Standard Oil Company, agreed to spend several million dollars installing a "sweetening" plant, thus bringing another industry to Arkansas, and to sell cleaned gas to the power company for its power plant.

The price obtained for the gas made possible the sale of sulphur at a price lower than otherwise would have been possible. Hence four industries were developed simultaneously: the natural gas industry, the power industry, the sulphur industry, and the distillate industry!

In the meantime, the Arkansas Power & Light Company accomplished another task of forming a power pool embracing 10 companies to supply electricity to a new

(Continued on page 58)

Rapid progress is being made on the generating station being built in south Arkansas by the Arkansas Power & Light Co., which will utilize the "sour" gas of the New McKamie field. The new plant will be unique in that its generator will be on the roof of the building. The unit will be encased in a weatherproof metal container, but otherwise will be in the open. Above is an artist's sketch of how the station will look when completed. Below is a recent picture showing the walls of the building well under way; steel warehouse is at the left. Capacity of the generator will be 30,000 kilowatts but provision is included in the design for three extra units.

South's Construction Contracts Hit New Eleven-Month Peak

by

SAMUEL A. LAUVER

Eleven-month total exceeds $3,765,000,000 as November contracts near $253,000,000

South's Construction By States

	November, 1942 Contracts Awarded	November, 1942 Contracts to be Awarded	Contracts Awarded First Eleven Months 1942	Contracts Awarded First Eleven Months 1941
Alabama	$22,930,000	$8,650,000	$175,173,000	$247,562,000
Arkansas	3,978,000	9,325,000	96,235,000	206,289,000
Dist. of Col.	2,899,000	3,128,000	66,397,000	50,092,000
Florida	16,325,000	15,228,000	286,559,000	122,833,000
Georgia	17,475,000	8,040,000	191,697,000	163,120,000
Kentucky	4,149,000	9,305,000	107,903,000	123,957,000
Louisiana	49,571,000	13,125,000	265,366,000	204,079,000
Maryland	11,207,000	10,046,000	216,755,000	190,329,000
Mississippi	14,485,000	5,042,000	193,545,000	76,176,000
Missouri	3,545,000	3,696,000	184,096,000	121,819,000
N. Carolina	8,265,000	22,378,000	176,596,000	103,318,000
Oklahoma	32,612,000	6,248,000	209,788,000	143,224,000
S. Carolina	11,389,000	5,767,000	100,710,000	64,908,000
Tennessee	9,850,000	6,829,000	281,864,000	167,656,000
Texas	33,846,000	30,393,000	921,398,000	477,775,000
Virginia	9,948,000	11,379,000	254,230,000	188,581,000
W. Virginia	209,000	1,625,000	37,417,000	83,466,000
TOTAL	$252,683,000	$170,208,000	$3,765,729,000	$2,735,184,000

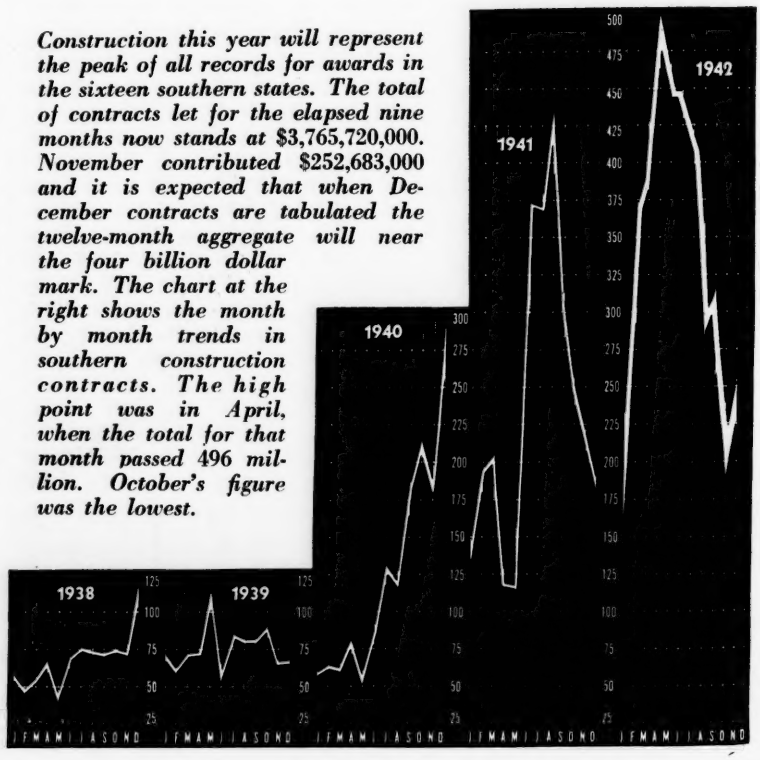
PREVIOUS records for Southern construction continued to topple during November, as the largest total ever tabulated for the eleventh month of any year —$252,683,000—swelled the already huge accumulation of contracts awarded for projects below the Mason and Dixon line to a point far beyond any former peak to $3,765,720,000.

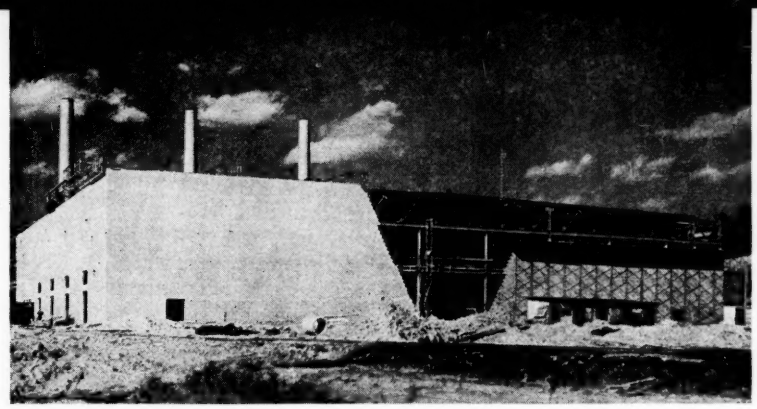
The November figure is twenty-six per cent ahead of the total for the preceding month, despite war restrictions which have forced some types of work down to minimum levels. The November total is also more than fourteen per cent above the comparable month of last year, when the previous all-time high was established.

A major factor in the November increase was the revival of industrial construction. This was over eight times the valuation for the preceding month. Defense plant contracts accounted for most of the rise. Acceleration in several fields, such as airplane manufacture and oil refining and transportation, was outstanding. Erection of additional dehydration factories at various points indicated the changes soon to be made in American eating habits.

Public building, as has been the case for the last four months, was the largest single contributor to the November total, which with exception of the small private building figure, was made up of prac-

Construction this year will represent the peak of all records for awards in the sixteen southern states. The total of contracts let for the elapsed nine months now stands at $3,765,720,000. *November contributed* $252,683,000 *and it is expected that when December contracts are tabulated the twelve-month aggregate will near the four billion dollar mark. The chart at the right shows the month by month trends in southern construction contracts. The high point was in April, when the total for that month passed* 496 *million. October's figure was the lowest.*





Westinghouse Electric & Manufacturing Co. is adding a glass manufacturing plant to the thriving industrial community developed within the last few years in the hills surrounding Fairmont, W. Va. Shown in the illustration at left, the plant will contain three furnaces. A stack for each furnace, as well as the frame of the ventilating monitors can be seen above the finished brickwork at the left. The glass will be drawn, gauged, sorted and weighed on the second floor. Natural gas will be used for not only the melting and processing operations but also for heating. Cost of the plant when construction was started a year ago was $1,800,000. Approximately 600 employes will be needed upon completion. Yearly capacity has been placed around 10,000 tons of glass tubing for fluorescent and incandescent lamp manufacture and other activities. The new glass plant sits up the hill from the new Westinghouse fluorescent lamp plant. The building is two stories high. Part of the steel frame is visible at the right. It is 345 by 360 feet and will be fluorescently lighted throughout. Eight thousand tons of sand will be processed yearly, and from 200 to 300 million cubic feet of gas will be consumed.

tically all government-financed work. Approximately one-fifth of the public building figure of $126,215,000 was represented by the value of public housing projects. A pressing need for shelter of what housing officials call "in-migrant" workers, but usually referred to as "defense" workers, almost doubled the amount of this work undertaken, as compared with the preceding month. The November public housing total was $20,134,000.

Problems associated with the serious housing situation are reflected in the summaries of other types of work, as prepared from reports received by the MANUFACTURERS RECORD. These problems were particularly evident in the engineering construction field, where projects to provide additional water supplies and sanitary facilities rose to $12,283,000. The figure for the preceding month was $8,098,000.

An anomaly in the November figures was the rise in the private building figure. Seventy per cent above the level for the preceding month, private building during November was principally housing, which accounted for all but $157,000 of the total of $3,913,000.

Awards for Southern projects so far this year have mounted to $3,765,729,000. Nearest approach to this huge figure is the eleven-month total of 1941, the $2,735,184,000 total of which is more than one billion dollars shy of the current year's activity. From a percentage standpoint, the eleven-month total of 1942 is over thirty-seven per cent ahead of the figure for the same period of last year.

Southern construction in August passed the $2,922,808,000 valuation placed on contracts let during the entire year of 1941. When that huge figure was reached, it was apparent that the current year would be a record one in Southern construction annals. It is expected that when the activity for the twelve 1942 months is finally tabulated that the total will be around four billion dollars.

Expenditure for new construction throughout the country will be around thirteen billion dollars, according to a prediction made by the Department of Commerce. Two billion above the country's record for last year, this figure shows the South to be doing its one-third share in proportion to its population and area.

Public construction not connected with the war effort will continue its downward trend, it is pointed out in the announcement, although those projects deemed necessary will undoubtedly be allowed to proceed. Residential work, both private and public, will of necessity, probably be given the green light in those areas where defense housing is in a critical condition.

Reconsideration of those projects arbitrarily suspended by the War Production Board may result in revival of some, especially when wartime requirements are shown to be hindered. A harbinger of future policy for vital projects is seen in the decision to allow the Bureau of Mines to proceed on several helium plants on which construction was stopped in October.

Government construction operations may now be likened to some extent to the routine of a family with an income that precludes expenditure of funds for anything but absolutely essential items and even those in the order of importance to the immediate future and the availability of money.

The complexion of construction changes from month to month and from day to day. What a year ago was built of steel is now fabricated from wood. Substitutes used yesterday may today be replaced by alternate substitutes. Permanent construction, particularly of military facilities, long ago was supplanted by temporary designs. Even the use of noncritical materials is limited by the very fact that in many instances equipment made from vital substances is required in their production.

Successful war operations depend upon carefully planned and executed construction activity. The two are practically inseparable. Expansion of the country's military training and industrial production programs can be directly traced through the construction industry, which proportionately mushroomed its organization to facilitate erection of the camps and factories now being used to train the soldiers and to manufacture the munitions, ships, planes and guns to win victory in the current world-wide conflict.

South's Construction By Types

	November, 1942 Contracts Awarded	November, 1942 Contracts to be Awarded	Contracts Awarded First Eleven Months 1942	Contracts Awarded First Eleven Months 1941
PRIVATE BUILDING				
Assembly (Churches, Thatres, Auditoriums, Fraternal)	$32,000	$200,000	$4,386,000	$17,754,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	.....	115,000	4,714,000	26,768,000
Residential (Apartments, Hotels, Dwellings)	3,756,000	816,000	103,728,000	129,474,000
Office	125,000	.....	1,243,000	12,323,000
	$3,913,000	$1,131,000	$114,071,000	$186,319,000
INDUSTRIAL	$74,842,000	$21,936,000	$1,072,562,000	$1,226,985,000
PUBLIC BUILDING				
City, County, State, Federal	$105,378,000	$84,902,000	$1,736,571,000	$789,518,000
Housing	20,134,000	34,720,000	223,250,000	146,318,000
Schools	703,000	1,846,000	32,311,000	35,395,000
	$126,215,000	$121,468,000	$1,992,132,000	$971,231,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	$19,343,000	$11,444,000	$329,469,000	$117,418,000
Federal, County, Municipal Electric	3,493,000	1,527,000	21,405,000	58,915,000
Sewers and Waterworks	12,283,000	8,471,000	76,392,000	23,319,000
	$35,119,000	$21,442,000	$427,266,000	$199,652,000
ROADS, STREETS AND BRIDGES	$12,594,000	$4,231,000	$159,698,000	$150,997,000
TOTAL	$252,683,000	$170,208,000	$3,765,729,000	$2,735,184,000

NEW PRIORITY ORDERS RECENTLY PUT IN EFFECT

"M" CONSERVATION ORDERS

Order	Addition	Title	Effective Date
M-1-i	Amended	Aluminum	11-20-42
M-8-a	Amend. #3	Cork	11-17-42
M-9-c-4	Amended, Amend. #1	Copper	11-18-42
M-11-b	Amended	Zinc	11-26-42
M-15-b	Amended	Rubber, balata and their products.	11-30-42
M-19	Amended	Chlorine	12- 1-42
M-21-d	Amended	Corrosion and heat resistant chrome steel	11-18-42
M-24	Amended	Iron and steel scrap	11-19-42
M-29	Amended	Tungsten	11-27-42
M-30	Amended, Amend. #2	Ethyl alcohol	11- 9-42
M-30	Amended, Amend. #3	Ethyl alcohol	12- 2-42
M-39-c	Amend. #2	Lead	11- 9-42
M-43-a	Int. #1	Tin	11- 7-42
M-42-a	Amended	Tin	11-24-42
M-47	Amended	Burlap and burlap products	11- 2-42
M-50	Amended	Jewel bearings	11- 2-42
M-51	Amended	Pigs' and hogs' bristles	11-30-42
M-54	Amend. #4	Molasses	11- 2-42
M-61	Amended	Graphite	12- 4-42
M-63	Amend. #8	Imports of strategic materials	11-20-42
M-63-a	Amended	Imports of strategic materials	11-26-42
M-63-e		Imports of strategic materials	11-26-42
M-68-c	Amended	Petroleum material conservation	11-17-42
M-71	Amended, Int. #1	Fats and oils	11-18-42
M-71	Amended	Fats and oils	11-24-42
M-72-a	Int. #1	Tinned and de-tinned scrap	11-10-42
M-73	Amended Nov. 23	Wool	8- 3-42
M-80-e		Sole leather	11-25-42
M-81	Amended, Amend. #5	Cans made of tinplate and terneplate	11- 4-42
M-86-a	Amended	Canned foods	11-23-42
M-93	Amend. #3	Woodpulp	11- 2-42
M-99	Amend. #1	Printing and publishing	11-13-42
M-101	Amended	Mica	12-10-42
M-107	Amended	Cotton textiles for use for bags	11- 2-42
M-109	Amend. #2	Rough diamonds	11-11-42
M-110-a		Molybdenum	11- 6-42
M-115	Amended	Collapsible tubes	11-24-42
M-126	Amended	Iron and steel conservation	11- 5-42
M-126	Amended	Iron and steel conservation	11-21-42
M-126	Amended	Iron and steel conservation	11-30-42
M-130	Amend. #1	Passenger automoblies	11- 2-42
M-135, M-135-a, M-135-b, M-135-c and all amends.	Revoked	Coffee	11-20-42
M-136	Amend. #2	Blackplate cans	11- 2-42
M-141	Amended	Horsehides	11- 4-42
M-141-a		Horsehides	11- 4-42
M-155	Amend. #2	Combed cotton yarn	11- 2-42
M-159	Amended	Butyl alcohol	11-16-42
M-161	Amend. #7	Inventory restriction exceptions	11-12-42
M-169	Amended	Methyl ethyl ketone	11-16-42
M-183	Amended	Phosphate plasticizers	11- 6-42
M-188		Petroleum sulfonates	11-10-42
M-193		Glycerine recovery	11- 9-42
M-205	Amend. #1	Dried fruit	11-11-42
M-207	Sched. #III	Cotton textiles for work apparel; hospital clothing	11-21-42
M-207	Sched. #IV	Cotton textiles for work apparel; women's work clothing	11-21-42
M-212	Amended	Petroleum coke	11-21-42
M-216	Amended	Conservation of new automobiles subject to rationing	11-19-42
M-221		Textile shipping bags	11- 1-42
M-222	Amended	Theobromine and caffeine	11-27-42
M-231	Amend. #2	Chemical fertilizers	11-14-42
M-231	Amended	Chemical fertilizers	12- 4-42
M-237	Amended	Canned foods	11-24-42
M-241	Amended	Paper and paperboard	11-30-42
M-246		Phenolic resins and phenolic resin molding compounds	12- 1-42
M-246	Amend. #1	Phenolic resins and phenolic resin molding compounds	12- 1-42
M-247		Nylon waste	11- 2-42
M-255		Allocation of new steel drums	11-16-42
M-258		Mineral oil polymers	11-17-42
M-259		Dairy products	11-25-42

(*Continued on page* 46)

Transporting Frozen Goods

WHEN the American Red Cross first inaugurated its "blood bank" work in New York City, an unusual shipping complexity arose. There was only one plant at the time which could process the blood into dry plasma, and it was located at Glenolden, near Chester, Pa., over one hundred miles away.

The problem was simply this: Each blood unit had to be kept in a 40-degree temperature, immediately after withdrawal from the person donating it and yet it had to be converted within a twenty-four hour period. How could it be carried to Glenolden at the same temperature?

The answer was found in a unique "traveling refrigerator" known as the "Church Container," which the Railway Express Agency had introduced in express service.

The device was designed by Major Elihu Church to make possible the movement of L.C.L. refrigerated products with a special object of stimulating the shipping of the "quick frozen food" traffic. The container provided a space inside of ten cubic feet and the temperature could be adapted from above freezing or below zero, by the use in the first instance of "water ice" and "dry ice" in the second.

This seemed to meet the Red Cross requirements exactly and the blood units began to move in these containers, first once a week, then more frequently and finally they traveled in considerable number on regular schedules between New York and Glenolden.

The dry plasma units proved so successful for the transfusions industry that the Red Cross was called upon to undertake the same work for the Army and Navy. In time, processing equipment was established in centrally located medicinal laboratories at key centers so Red Cross chapters could handle blood donations in many other sections of the country. Additional Church containers were placed at the disposal of the Express Agency and today the major part of some 400 such boxes are employed exclusively in the service of the Red Cross.

After considerable study it was found that the containers were especially useful for semi-perishable commodities that did not require extremely low temperatures, because few other shipping facilities were available for rapid, long distance movement, available at a moment's notice.

The boxes were mounted on casters which facilitate handling, and the refrigerant, for which a receptacle is available, is provided by the shipper. Express charges are on the net weight of the shipment with a minimum of 350 pounds.

The Church container is also being used on an expanding scale throughout the South and especially by large oyster shippers at Chesapeake Bay points, in getting the shucked product to dealers over a wider area. Fifty-two gallon cans can be placed in a container, making a shipment load of 418 pounds.

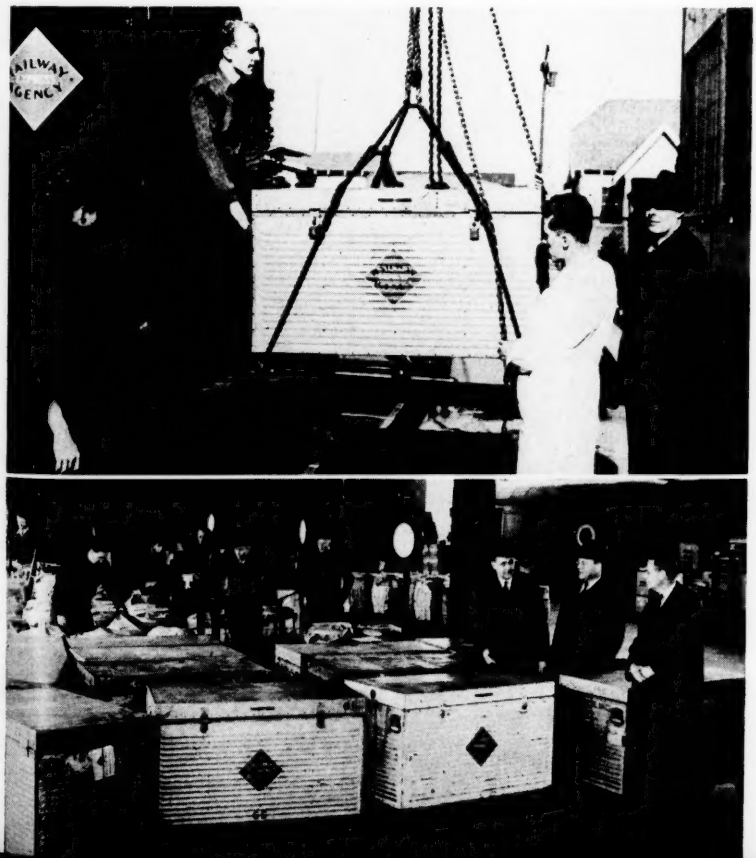
The containers have likewise been found advantageous for LCL express movement of ice cream, dressed poultry, frozen foods, fruits, vegetables and seafood, meat, hatching eggs, and a miscellany of other highly perishable products including serums, laboratory specimens and unexposed motion picture film stock.

One of the significant features in this development is the general transportation situation, which may take many refrigerated trucks off the road and at the same time simulate the quick-frozen method of preserving fresh fruits and vegetables. Church containers offer a substitute method of distribution that is not affected too much by the rubber shortage or transportation difficulties.

The volume of express ship-

(*Continued on page* 58)

Top—Church container solves transportation problem of Red Cross in getting blood donation units from receiving stations to processing laboratories, for conversion into dry plasma. Bottom—From Baltimore, Church containers carry shucked oysters to points as far distant as Texas.



Important New Industrial Plants and Expansions in the South During November

ALABAMA

BIRMINGHAM—detinning plant—Defense Plant Corp., Fred Foy, local agent, authorized purchase of old Vanderbilt furnace site, between East Birmingham and Inglenook, from Woodward Iron Co., for use in construction of detinning plant, to cost $800,000 to $1,000,000; plant will be built by H. K. Ferguson Co., of Cleveland, Ohio, and operated by Johnston-Jennings, also of Cleveland.

Airplane Modification Plant—Reconstruction Finance Corporation approved an appropriation of $12,500,000 for immediate start of first unit of an airplane modification plant on 260-acre site; plant will be built under a Defense Plant Corp. contract and will be operated under contract with the United States Army Air Forces under Bechtel-McCone-Parsons Corp., of Los Angeles, Calif. main hangar will be 1600 ft. in length and 700 ft. wide approximately 1,400,000 square feet of building will be constructed within it; work to start immediately; Merriman and John C. Byrne, engineers for the company; J. P. Yates will be manager of the plant.

FLORIDA

ZELLWOOD—dehydration plant—Florida Dehydration Co., John F. White, Treas., Zellwood, operating company for Sokel & Co., 241 E. Illinois, Chicago, Ill., will operate vegetable dehydration plant at Zellwood, 19 miles northwest of Orlando; plant will be located on edge of an 18,000 acre tract of muck land on north and west shores of Lake Apopka; RFC has financed the drainage of a 3,000 acre tract at cost of $142,000; and it will finance drainage of 7,000 additional acres at cost of $257,500; first unit to be completed by Jan. 1 will cost $100,000; first unit to have a schedule of dehydration 10,000 tons of raw cabbage this season to produce 500 tons of finished product; at present 3,000 acres have been drained and planted, unit No. 2 consisting of 7,000 acres will be drained soon.

GEORGIA

ATLANTA—motor repair building—A. J. Collins, Red Rock Bldg., has contract for motor repair shop building in Cobb County for Marietta Aircraft Assembly Plant; Robert & Co., Archts.-Engrs., Marietta and Atlanta.

MARIETTA — paint shop building — A. Farnell Blair, 315 Church St., Decatur, has contract for paint, shop building for U. S. Area Engineer Office; Robert & Co., Archts.-Engrs., Bona Allen Bldg., Atlanta, and Marietta.

KENTUCKY

Equipment—Defense Plant Corp. announced award of contract to Tom Moore Distillery Co., Bardstown, to provide equipment for plant in Kentucky.

Equipment—Defense Plant Corp. executed contract with Hirsch Distilling Co., Loretto, Ky., to provide equipment for plant in Kentucky.

Refinery—Ashland Oil & Refining Co., Ashland, erecting high octane refinery on Big Sandy River; Refining Engineering Co., 1325 Greenup Ave., Ashland, general contractor.

LOUISIANA

NEW ORLEANS—plant—Andrew Jackson Higgins will begin work immediately on plant to build 1200 plywood cargo planes; will be constructed on site at nearby Michaud; contract signed for the $30,000,000 plant; will utilize part of facilities of the abandoned Micheaud shipyards of the Higgins Industries for construction of cargo planes. Defense Plant Corp., authorized contract to Higgins Industries, Inc., to provide machinery and equipment in plant in Louisiana, at cost in excess of $600,000.

NEW ORLEANS—miscellaneous buildings—Lionel F. Favret, 937 Gravier St., has contract for miscellaneous buildings at Delta Shipbuilding Co., Inc.; O. O. Carpenter, plant facilities engineer.

SHREVEPORT—plant—Atlas Oil & Refining Corp., Atlas Bldg., Shreveport, entered into contract with Rubber Reserve Co., under terms of which Atlas Oil & Refining Co. will produce a butadiene-butylene cut to be sold to Rubber Reserve Co. over a three-year period; Atlas company acting as contractor; will probably employ Hudson Engineering Co., 1776 Broadway, New York, in the construction.

Office Building—R. L. Keyes, Abbeville, representative of four oil companies to erect $4,000,000 gas recycling plant in Erath oil field in Vermilion Parish, started work on erection of office building; install 2 compressors; plant will be used for production of hydrocarbons used in blending of aviation fuel and chemicals for production of synthetic rubber; companies interested are, Texas Co., New Orleans, Humble Oil & Refining Co., Humble Bldg., Houston, Tex.; Phillips Petroleum Co., and Tidewater Associated Oil Co.

United Gas Pipe Line Co., Shreveport, La., recently obtained certificates of public convenience and necessity from Federal Power Commission for construction projects; all engineering handled by forces of United Gas Pipe Line Co.; O. C. Whitaker Construction Corp., Fort Worth, has contract for pipe line construction; Stearns-Rogers Manufacturing Co. of Denver, Colorado, has contract for the dehydration plants; pipe for this project is being furnished from owner's present facilities; projects are: Construction of approximately 38 miles of 12¾" O. D. pipe line from Lake Long gas field near Houma to connect with the existing Baton Rouge-New Orleans pipe line near St. Rose, La. together with the construction of a dehydration plant at the origin of the line in the Lake Long gas field; construction of approximately 5½ miles of 8⅝" O. D. pipe line extending due south from the Lafourche Crossing gas field in Lafourche Parish to connect with the Gibson 10" lateral line in Sect. 85, Township 16 South, Range 17 East, Terrebonne Parish, together with a dehydration plant at the origin of the line in LaFourche Crossing gas field and including a telephone line paralleling said pipe line; A. D. Greene, Chief Engr.

MARYLAND

BALTIMORE—Morrow Bros., Inc., 14 E. Eager St., has contract for service building. Scott & McHenry Sts. for Bartlett-Hayward Division, Koppers Co.; brick and rein. conc.; cost $40,000; James R. Edmunds, Jr., Calvert Bldg., Archt.

BALTIMORE — buildings — American Hammered Piston Ring Division of Koppers Co., let contract to Morrow Bros., Inc., 14 E. Eager St., for $21,000 extension to warehouse, $19,000 addition to service building No. 1 and $7,000 alterations to office. Leimbach & Williams, 30 W. Biddle St., has contract for addition to cafeteria and for store room and office.

BALTIMORE — building — Consolidated Engineering Co., 20 E. Franklin St., has contract for building, 1201 Webster St., for Bethlehem Steel Co.; 1-story; frame; cost $25,000.

Baltimore — sub-station — Cogswell Construction Co., 513 Park Ave., has general contract for sub-station, 3929 Falls Rd., for Baltimore Transit Co.; Addison Worthington, Archt., 14 E. Hamilton St.; Henry J. Knott, 2122 Maryland Ave., has contract for brick work; John O. White Co., 100 N. Franklintown Rd., roofing; C. O. Wurzberger & Sons, 2600 Annapolis Ave., millwork.

Baltimore—alterations—Consolidated Engineering Co., 20 E. Franklin St., has contract for alteration to warehouse, 4500 E. Lombard St. for Maryland Sanitary Manufacturing Co.

Baltimore — storage building — Davison Chemical Co., let contract to Austin Co., 1820 Girard Trust Bldg., Philadelphia, Pa., for $28,000 storage building, Curtis Bay; frame; 60x120 ft.

Curtis Bay Station, Baltimore—buildings—U. S. Industrial Chemicals, Inc., Defense Plant Corp., Lessee, let contract to United Engineers & Constructors, Inc., 1401 Arch St., Philadelphia, Pa., for construction of alterations to Building No. 11; cost $25,000; also let contract to same builders for temporary building to cost $5,000; A. Miedwig, Engr.

Fairfield—United Engineers & Constructors, Inc., 1401 Arch St., Philadelphia, Pa., has contract for acetylene plant, 1700 Chesapeake Ave. for Defense Plant Corp., Air Reduction Sales Co., Inc., lessee; Charles E. Tarbell, Engr., New York City; cost $40,000.

MISSISSIPPI

Pascagoula—repair shop—Brice Building Co., Inc., 215 S. 18th St., Birmingham, Ala., low bidder for maintenance repair shop and repair pit at Ingalls Shipbuilding Corp.

MISSOURI

Kansas City—Equipment Defense Plant Corp., announced award of contract to Universal Television System, Inc., Kansas City for equipment for plant in Missouri.

St. Louis — addition — Woermann Construction Co., 3800 W. Pine Blvd. has contract for packing plant addition and alteration, 3842 Garfield Ave. for American Packing Co.; brick, conc. and wood; 31x106 ft. and 50x51 ft.; new roof over entire area of buildings; Henschein, Everds & Crombie, Archts., 59 E. Van Buren Ave., Chicago, Ill.

NORTH CAROLINA

Charlotte—battery plant—Defense Plant Corp., acquired plant just off Mount Holly Road; executed contract with National Carbon Co., Inc., 30 E. 42nd St., New York, for operation; manufacture batteries and allied products and accessories; plans improvements to building.

Kings Mountain — plant — The Solvay Process Co., 61 Broadway, New York, will locate plant at Kings Mountain involving quarrying and concentration of spodumene bearing rock and recovery of by-products; will require development of water supply, extension of power facilities, erection of process buildings and installation of grinding, flotation, drying and handling equipment; principal contractors and equipment suppliers are: The Solvay Process Co., Syracuse, N. Y.; Lee Construction Co., Charlotte, N. C.; Hardinge Co., York, Pa.; Denver Equipment Co., Denver, Colo.; Western Machinery Co., San Francisco, Calif.

TENNESSEE

Memphis — improvements — Sefton Fibre Can Co., 208 W. Georgia St., has building permit for $41,713 for alterations to building for manufacture fibre containers; remove several walls, place considerable flooring in warehouse and erect 1 small building; expend $500,000 for machinery; later plans additional improvements.

Roane County—ordnance plant—Stone & Webster Corp., P. Piper, Pur. Agent, 931 N Central Ave., Knoxville, P. O. Box 1751, has contract for ordnance plant for U. S. Engineer Office, New York City; Major Warren George, Knoxville, Area Engr.; Paul Brown, Residence Engr., both Knoxville.

TEXAS

Beaumont — foundry, etc. — Following awarded sub-contracts for brass foundry, machine shop and office building, Neches & Crockett Sts., for Oil City Brass Works; G. Sargl, Gen. Contr., 202 Liberty Bldg.: Plumbing, Beaumont Plumbing Co., 2136 Blanchette St.; roof and sheet metal, H. H. Sanders & Sons, Inc., 1051 Park St.; millwork, Gulf Manufacturing & Lumber Co., 1600 North St.; electrical, Thompson Electric Co., 175 Pearl St. all Beaumont; steel windows, Truscon Steel Co., M. & M. Bldg.; struc. steel, Basen Steel Works, 3118 Harrisburg, both Houston; Steinman & Golemon, Archts., Liberty Bldg., Beaumont; cost $70,000.

Beaumont — shipyard — Samuelson Shipbuilding Co., Charles T. Samuelson, starting work on new ship yard south side of turning basin near Hotel Dieu.

Beaumont—chimney—Pure Oil Co., let contract to Rust Engineering Co., Pittsburgh, Pa., for 150 foot rein. conc. chimney at Smith's Bluff near Beaumont.

Corpus Christi — building — Scott-Davis Construction Co., Corpus Christi, has contract at approximately $30,000 for construction of office building for Chemical Construction Corp., Heep Bldg., Corpus Christi; J. H. Coulter, Supt. of construction.

Dallas—detinning plant—H. K. Ferguson Co., Inc., 223 Hanna Bldg., Annex, Cleveland, Ohio, general contractor for plant for Dallas Tin Corporation, subsidiary of Los Angeles Bi-Products Co., Los Angeles, Calif., has not started work yet; will establish field office in Dallas; cost in excess of $1,000,000.

Fort Worth—plant—Defense Plant Corp. will erect a $2,500,000 plant for manufacture of liquid catalyst used in making high-test aviation gasoline; preliminaries to construction of plant in this area are underway on a 50-acre site; engineers and contractors on the project are the Chemical Construction Co., a subsidiary of American Cyanamid Co., 535 Fifth Ave., New York; plant will be operated by American Cyanamid & Chemical Corp. a subsidiary of American Cyanamid Co.

Houston—plant—Nyotex Chemical Co., C. F. Dunasky, Mellie Esperson Bldg., let contract to William A. Brunet, Shell Bldg., for main building of lime and chemical plant; 3-stories; steel frame; built-up roof; boilers and boiler houses, storage houses and tanks; cost between $50,000 and $100,000; cost of entire plant $6,000,000.

Port Neches—buildings—Lummus Co., 420 Lexington Ave., New York, general contractor for rubber plant for Neches Butane Products Co. let contract to O. W. Collins, Port Arthur, for 3 additional buildings at $67,000; Herman Weber, Beaumont, was awarded contract for first group of buildings recently and G. Sargl, Beaumont, received contract for warehouse and work shops.

Velasco—thiokol plant—Austin Co., Cleveland, Ohio, has contract for thiokol plant being built near Velasco for Defense Plant Corp.; contractors are also engineers; construction just begun and engineering will soon be completed; inquiries are being sent out through Austin Co. purchasing department for materials and equipment.

Machinery and equipment—Defense Plant Corp., authorized an increase in its contract with Crown Central Petroleum Corp., American Bldg., Baltimore, Md., for additional machinery and equipment for plant in Texas; in excess of $1,250,000, making a total commitment of more than $7,000,000.

Plant—Dallas Tin Corporation, subsidiary of Los Angeles Biproducts Co. of Los Angeles, Calif., will operate plant to be erected in Texas; H. K. Ferguson Co., Hanna Bldg., Cleveland, Ohio, Gen. Contr.; cost in excess of $1,000,000.

Pipe Line—Lone Star Gas Co., 908 Monroe St., Fort Worth, Floyd L. Carmichall, Mgr., Fort Worth, will lay 37 miles of 18-in. field line to augment Fort Worth's natural gas supply; plans include taking up 37 miles of pipe between Granbury and Gordon; new 18-in. line will tie into the company's 20-in. East Texas line and then parallel it for 37 miles; the 20-in. line runs from Cayuga, Long Lake and Grapeland in East Texas extending 117 miles to Irving; from Irving the gas is transported to Fort Worth through an established 16-in. main line; construction of the new 18-in. line will be by L. E. Farley and B. & M. Construction Corp., Petroleum Bldg., Oklahoma City, Okla.; Julian L. Foster, Gen. Supt. and Chief Engr. for Lone Star Gas Co.

VIRGINIA

Pipe line—Plantation Pipe Line Co., Guilford Bldg., Greensboro, N. C., has completed survey of all but about 20 miles of proposed pipe line between Greensboro, N. C. and Richmond, Va.; laying of pipe secured from Illinois Pipe Line Co., begun.

WEST VIRGINIA

Wheeling—building—Don J. Byrum, Inc., Wheeling Bank & Trust Bldg., has contract for plant to be opearted by Wheeling Bronze Casting Co., 36th St. and B. & O. R. R. crossing; K. G. Paxton, Archt., Board of Trade Bldg.

Contracts Proposed

ARKANSAS

WILSON—dehydrating plant—R. E. L. Wilson Co. will build and operate dehydrating plant; cost over $50,000.

YELLVILLE — zinc mine — Silver Hollow Mining Co. plans development of zinc mine in North Arkansas field; has Federal loan of $20,000; property is located 1½ miles below mouth of Rush Creek on Buffalo River; plan mill for concentrating purposes; John Dirst, Mgr., and W. C. Cushing, formerly of Los Angeles, Calif., mining engineer, have headquarters at Yellville.

DISTRICT OF COLUMBIA

WASHINGTON — extension — Potomac Electric Power Co., 10th & E Sts., N. W., has in process of installation, planned for operation in 1943, a 50,000 KW unit and boiler at Buzzard Point Station; completed in 1942 a 1-50,000 KW turbo-generator unit at Buzzard Point Station; these are 900 degree Fahrenheit and 650 lb. gage turbines with pulverized coal burning, 525,000 lbs. of steam per hour boilers; in addition to the above, there is another 50,000 KW unit on order; delivery uncertain; during 1942 there has been installed approximately 170,000 Kva. of 33 Kv. and 66 Kv. transmission lines from generating station to distributing stations; these lines consist of: 2-20,000 Kva. 33 Kv. oil filled underground transmission circuits from generating stations to distribution substations with 20,000 Kva. transformers at the terminals; 2 similar circuits as above which are operated temporarily at 13.2 Kv; 2-66 Kv. 45,000 Kva. oil filled underground transmission circuits from Buzzard Point Station with submarine crossing under the Potomac River to the huge War Building in Arlington, Va.; from the War Building substation a 15,000 Kva. breakdown service connection has been made with the Virginia Public Service Co.; in addition to the reinforcement of a number of existing transmission and distribution substations, it was necessary in 1942 to install four new 4Kv. distribution substations; construction of two more 4Kv. distribution substations is planned for 1943; 16 second hand mercury arc rectifiers and rotary converters have been purchased and are being installed at existing and new stations to provide for increase in the street railway loads.

FLORIDA

Pipeline—Trans-Florida Pipeline Co. of Tallahassee, applied to War Department for permit to construct an 8-in. high pressure oil pipe line crossing the Suwanee River near Ellaville.

LOUISIANA

ALEXANDRIA—pipe line—Southern Gas Lines, Inc., Monroe, granted non-exclusive right and privilege of laying, maintaining and operating an 8-in. gas line on, over and across certain streets and alleys in city.

ALEXANDRIA—gas pipe line—Southern Gas Lines, Inc., has approval of Army and Navy Munitions Board, Washington, D. C., for pipe to construct a 42-mile natural gas line from Ville Platte fields to Alexandria to furnish city with additional gas; cost of proposed 8-in., 42-mile line, $10,000 per mile.

BATON ROUGE—rubber plant—Copolymer Corp., recently organized with A. L. Friedlander, of Dayton Rubber Co., Dayton, Ohio, president, will start work soon on a new synthetic rubber plant; produce rubber from butadiene and styrine.

EOLA — carbon black plant — State Conservation Commissioner Joseph L. McHugh signed permit for erection of a $500,000 furnace type plant by Southern Carbon Co.; company will use approximately 6,000,000 ft. of gas daily and produce 7 to 9 lbs. of carbon black per 1000 cu. ft. of gas used.

NEW ORLEANS — pipe line — California Co., Masonic Temple, applied for War Department permit to install and maintain a 6-in. and 2-in. pipe line over and across the levee, Southwest Pass, Mississippi River opposite Dalcour, Plaquemines Parish.

NEW ORLEANS—bottling plant addition —Philip P. Cazale, Archt., 8 Marlborough Gate, opened bids Nov. 23 for construction of locker room and lunchroom addition to bottling house at Falstaff Corporation Plant No. 4, 2600 Gravier St.; proposed addition will be over rear of one-story section of bottling house; brick and frame; following items of work included: masonry, paving, plastering, common brick, carpentry, glazing, composition roof, sheet metal work, roof insulation, Celotex, tile floor, tile work, hardware and painting. Prospective estimators: Gervais F. Favrot, Balter Bldg.; Chris Larsen Co., Maritime Bldg.; J. Gordon Lee, Carondelet Bldg., and J. A. Haase, Jr., Inc., 822 Perdido St., all New Orleans.

Pipe Line—Standard Oil Company of Louisiana, Shreveport, applied for War Department permit to install and maintain six 8-in. oil pipe lines at depth of 5 ft. below water surface across the channel section and slopes across Bayou Rapides in Rapides Parish.

MARYLAND

BALTIMORE—addition—Davis Construction Co., 9 W. Chase St., additional estimator, bids opened Nov. 10 for addition. Highlandtown, for Westinghouse Electric & Manufacturing Co., 4015 Foster Ave.; brick and frame; 1-story.

BALTIMORE—alterations—Defense Plant Corp., authorized plant facilities in Maryland by Maryland Sanitary Corp., 4500 E. Lombard St., Baltimore; in excess of $1,250,000.

FAIRFIELD—building—Bethlehem Fairfield Shipyard, Inc., received bids Dec. 2 for industrial relations building; Leimbach & Williams, Inc., 30 W. Biddle St. and Baltimore Contractors, 23 N. Central Ave.; Consolidated Engineering Co., 20 E. Franklin St., Cummins Construction Co., 803 Cathedral St., and Davis Construction Co., 9 W. Chase St., all Baltimore, estimators.

FAIRFIELD — acetylene plant — Air Reduction Sales Co., Inc., Defense Plant Corp., Lessee, received bids Nov. 16 for Plant No. 1; United Engineers & Constructors, Inc., Archts., 1401 Arch St., Philadelphia, Pa.; following are prospective estimators: Leimbach & Williams, 30 W. Biddle St.; Consolidated Engineering Co., Inc., 20 E. Franklin St., both Baltimore, and Irwin & Leigh-

(*Continued on page 60*)

CONTRACTORS and SUB-CONTRACTORS WANTED

For information, blue prints, specifications, etc., on the following items write or telephone the Philadelphia or Baltimore office of the War Production Board, quoting the symbol number of the item in question. You will then be put in touch with the engineer assigned to that item. Please quote the Manufacturers Record.

Ref. O'Hara-55-2

A Penna. concern requires casting and machining facilities for 8 large ANVIL SUB BASES. Size—185" L x 111" W. x 45" H.—Approx. Wt. 200,000 lbs. each. Material—Cast iron alloy. Equipment required:—Heavy cast iron foundry facilities and handling equipment for 125 tons. Planer 10' W. x 4' H. Clearance x 16' stroke. Deliveries: one set in Feb., March, April and May. Priority rating AA1. Patterns to be supplied by subcontractors.

Ref. O'Hara-55-3

A New Jersey concern requires machining facilities for WATER CYLINDERS and POWDER CONTAINERS. Steel Castings furnished by Prime Contractor and are available immediately. Cylinders weigh approx. 8020# and Powder Containers weigh approx. 6020#. Machines required are Horizontal Boring Mills with 5" to 7" bar x 6' horiz. travel. Vertical Boring Mill 60" x 72" head clearance, or an Engine Lathe 6" swing x 72" c to c. 3000 to 5000 hours required before March 1, 1943. Priority AA3.

Ref. Keefer-57-1

A Government Agency is interested in securing subcontracting facilities for the manufacture of PRECISION DIES, for Radio Tube Parts.

Ref. Roystuart-62-1

An Eastern Penna. concern is seeking subcontracting facilities for the machining of HEAVY GREY IRON CASTINGS. Weights will approximate 12,000 to 15,000 lbs. each. These castings are for low pressure cylinders, Pistons, and Beds for Triple Expansion Engines. Tool requirements are large Planers and Vertical Boring Mills.

Ref. Roystuart-61-1

An Ohio corporation requires 25,000 DISCHARGE VALVE SEATS. Material: Stainless Steel. Equipment required: Automatic Screw Machine, 1" Spindle; Hand Screw Machine; Drill Press; Flat Lapping Machine, ½" Diameter x 1/32" seat. Dimensions 1" OD x .328 width. Tolerance .002, threads NEF#3. Material to be furnished by contractor.

Ref. Roystuart-63-1

A New Jersey Corp. requires 600,000 PINS, 60,000 schedules per month. Equipment required:—Centerless Grinder, abrasive cut off wheel. Cadmium Plating. Tolerance .005. Dimensions .106 OD x .340 length. Material: Steel SAE 1035. Material can be furnished either by prime or sub-contractor.

Ref. Roystuart-63-2

A New Jersey Corp. required 300,000 PLUGS, 30,000 pieces per month. Equipment required: 4 spindle automatic screw machine and hand screw machine—Spindle Sizes 1¾". Bench type drill press—Cadmium Plating. Tolerance .005. Threads NC and NS—#2. Dimensions 1.650 OD x 2.10 length. Material—Steel SAE-1112. Material can be furnished either by prime or subcontractor.

Ref. Roystuart-63-3

A New Jersey Corp. requires 300,000 SEALING COLLARS, 30,000 monthly requirements. Equipment required:—Single Spindle ⅝", automatic screw machine, Bench type drill press—Cadmium Plating. Tolerance plus or minus .010. Threads: ⅜" —16 NC—2—LH—INT. Overall dimensions—⅝" OD x .200 width. Material can be furnished either by prime or subcontractor.

Ref. Roystuart-63-4

A New Jersey Corp. requires 300,000 ARMING SCREWS. 30,000 monthly requirements. Equipment required:—⅜" single spindle automatic Screw Machine, Cadmium Plating. Tolerance—.005 Threads: ⅜"—16 NC—2—LH EXT. Overall Dimensions—OD .375 x 3.30 length. Material: Steel SAE—1112. Material can be furnished either by prime or subcontractor. ...

Ref. Roystuart-63-5

A New Jersey Corp. requires 300,000 ARMING VANES. Schedule 30,000 per month. Equipment required—20 Ton Punch Press. ¾" spindle, automatic or hand screw machine—Drill Press and Tapping Machine, arc welder. 1/16" rod. Tolerance—.005—Threads NC—2. Overall Dimensions OD 3⅛" x 1½ high. Material: can be furnished by either prime or subcontractor.

Ref. Roystuart-63-6

A New Jersey Corp. requires 300,000 STRIKER SLEEVE. Schedule: 30,000 per month. Equipment required:—Automatic screw machine and hand screw machine. Spindle size 1", Bench type drill Press. Cadmium Plating. Tolerance—.002. Overall dimension .895 OD x .80 length. Material: Steel SAE—1112. Material can be furnished either by prime or subcontractor.

Ref. Roystuart-63-7

A New Jersey Co. requires 300,000 FUSE BODIES. Schedule:—30,000 per month. Equipment required: 2¼" six spindle automatic screw machine, #2 chucking turret lathe or hand screw machine, drill press, tapping machine. Tolerance:—.005. Threads #2 fit. Overall dimensions 2.25 OD x 4.145 length. Material:—Steel SAE 1112. Material can be furnished by prime or subcontractor.

Ref. Roystuart-57-6

A Government Agency requires large quantities CONDUIT COUPLINGS, ADAPTERS AND CONNECTORS. Machine Tools Required: Automatic Screw Machines, Spindles from ⅞" up, Turret Lathes, Spindle size up to 4", Hand Screw Machines or Bench Lathes. Material: Aluminum Alloy, Hex Bar Stock, Specification AA-A-351, Cond. T, Specification QQ-A-601, Class 4; Specification AN-QQ-A-366. Overall dimensions OD from 1 1/16" to 3⅜". Length from ¾" to 1⅞". Tolerance .005". Material not supplied to contractor.

Ref. Roystuart-63-8

A New Jersey Corp. requires 300,000 STRIKERS. Schedule—30,000 per month. ½" single spindle automatic and hand screw machine. Tolerance;—.005. Overall dimensions .50" OD x 1.200" length. Material:—Steel SAE-1035. Material can be furnished by prime or subcontractor.

Ref. Roystuart-57-8

A Government Agency requires 37,570 ENGINE CONTROL ROD TERMINALS. Machine Tools required: Turret Lathe #3 Warner and Swasey or equivalent; Bench Drill Press and Milling Machine. Minimum 300 lb. Forge Hammer, Cadmium Plating. Tolerance .022". Material: SAE 1035 Steel Forgings. Overall size 1⅞" x ½". Material not supplied to contractor.

Ref. Roystuart-57-9

A Government Agency requires large quantities of TURNBUCKLE EYES. Machine Tools required: Screw Machines from ⅜" to 1½" spindles, Bench Milling Machine, Drill Press, ½" Chuck, Tolerance .006". Material:—Nickel Steel, Navy Specification 12-T-7. Overall dimensions from ⅜" to 1.188" wide x 1.697" to 4.219" long. Material not furnished to contractor.

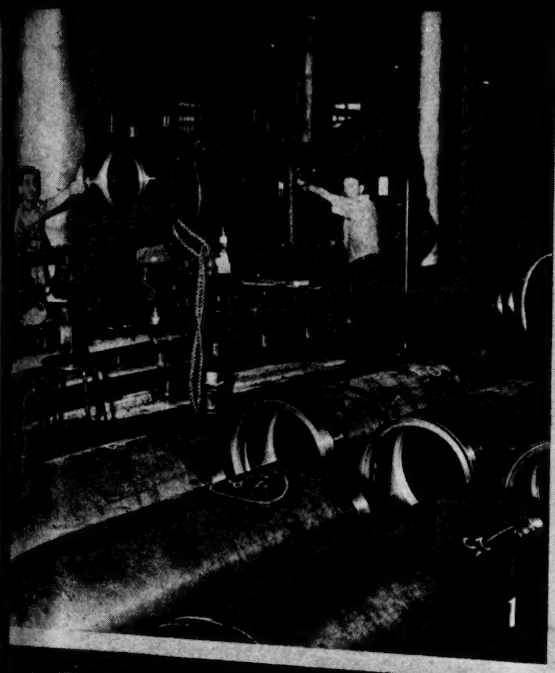
Ref. Roystuart-57-10

A Government Agency requires 69,000 SHACKLES. Machine Tools required: 300 to 500 pound drop forge hammer; Drill Press, ½" Chuck. Tolerance .010". Material: Nickel Steel, Navy Specification 12-S-13, Grade 1, Overall dimensions .500" to 1.250" wide x 1.266" to 3.188" long. Material not furnished to contractor.

Torpedo Production in the South

1. Made to hold 2500 lbs. air pressure per square inch, this torpedo is being lowered into position for another of the many operations required to build these messengers of destruction at a Naval Torpedo Station in the South. 2. The machining necessary in manufacturing torpedoes calls for the complicated operation of a turret lathe. 3. At work on the inside of a torpedo air-flask. 4. A torpedo bulkhead on the heavy lathe. 5. Painters putting the finishing touches on torpedo tubes. 6. Skilled workers engaged in the final assembly of torpedo tube mounts.

[O.E.M. Photos by Palmer]



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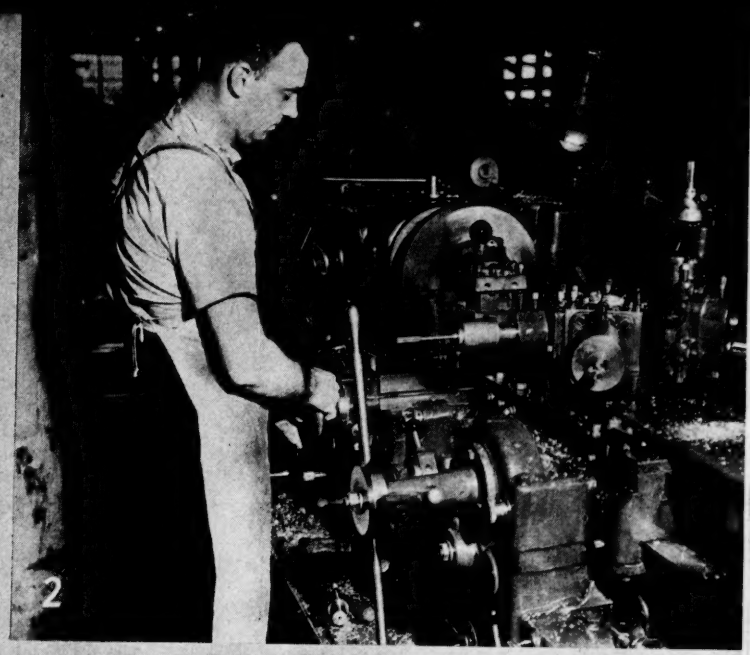

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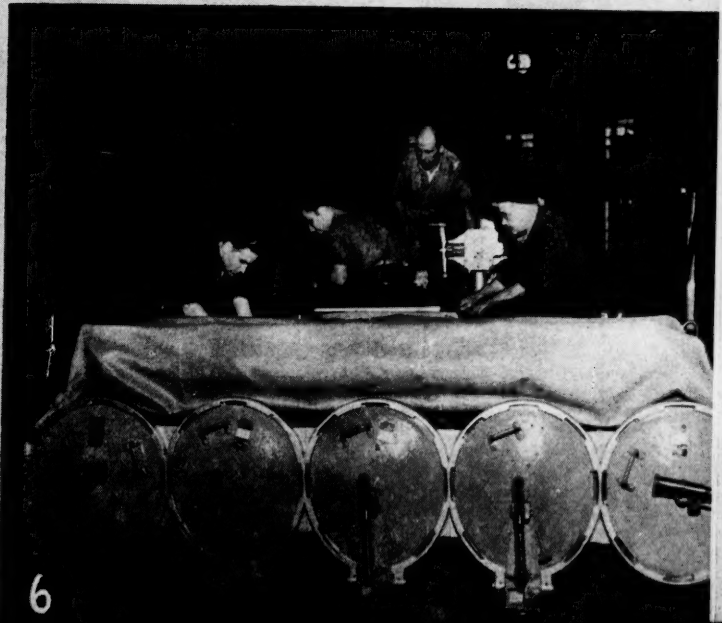


6

War Contracts and Allocations to Southern States Near $18,000,000,000 Through September

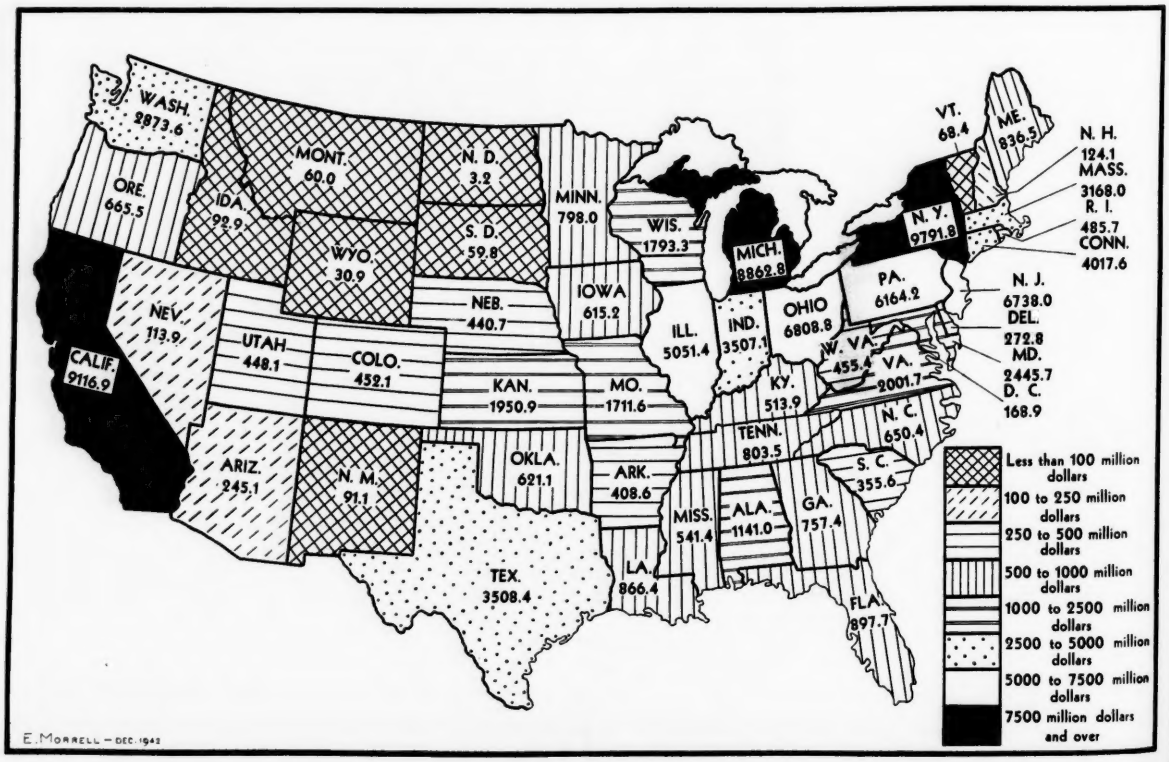
War contracts and allocations distributed by Federal agencies and British purchasing missions to the southern states for the period through September 1942 totaled approximately $17,848,556,000. This presents a gain of $2,726,224,000 during the two months of August and September. The period covered for United States contracts is that since June 1, 1940, but the British contracts date from September, 1939. Awards for the Army, Navy, Maritime Commission, Treasury Department and British purchasing missions do not include those having a value of less than $50,000 nor do they include contracts for foodstuffs.

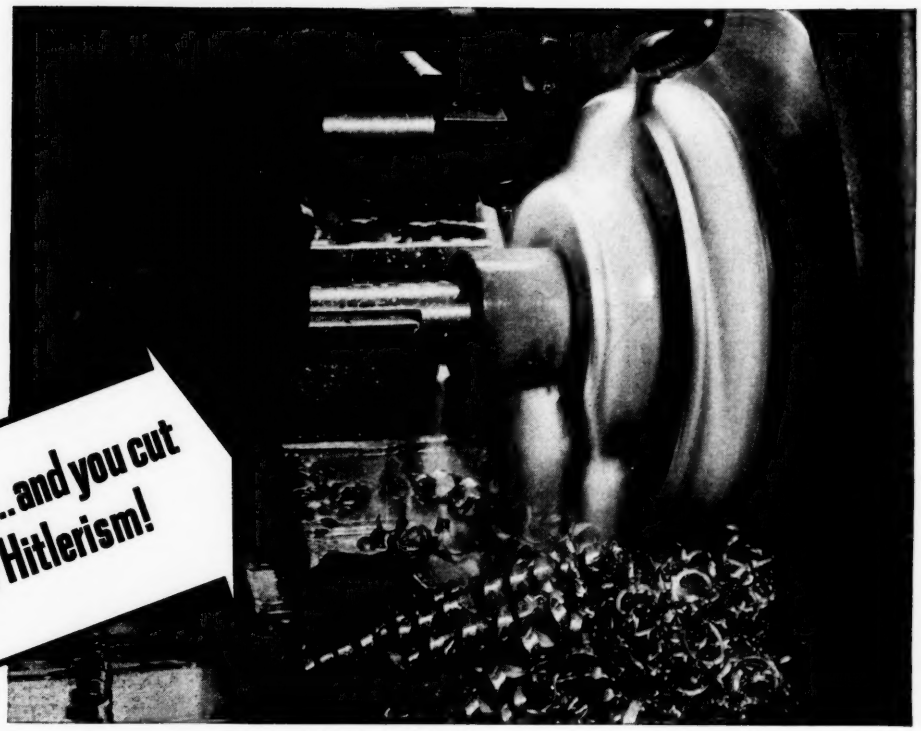
Major War Supply and Facility Contracts and Allocations, June, 1940 Through September, 1942
(Thousands of dollars)

	Army, Navy and Maritime Commission					Dept. of Commerce	Dept. of Agriculture	Federal Works Agency	Federal Security Agency	Federal Security Agency	
	Supply Contracts			Facilities							
	Aircraft	Ships	Miscell.	Industrial	Non-Industrial	C.A.A.	F.P.H.A.			R.F.C.	Total
Alabama	.....	274,900	270,750	363,044	157,239	1,271	41,319	19,190	7,201	6,053	1,140,967
Arkansas	.....	.....	50,886	217,424	117,767	356	13,330	4,397	4,031	627	408,558
Dist. of Col.	.....	324	7,738	16,152	40,786	.....	89,048	13,312	1,373	167	168,900
Florida	950	273,072	42,594	42,288	467,194	6,928	21,682	31,797	5,725	5,477	897,707
Georgia	409	142,994	225,800	95,006	238,822	4,773	26,054	13,890	7,325	2,288	757,361
Kentucky	32,501	.....	85,748	182,239	144,174	1,720	8,986	11,571	6,184	40,745	513,868
Louisiana	68,496	132,772	60,734	311,298	212,658	4,624	10,146	17,269	5,475	42,936	866,408
Maryland	1,003.169	438,313	537,370	189,507	178,382	.....	63,451	15,195	3,948	16,323	2,445,658
Mississippi	180	221,865	53,924	59,212	175,825	1,430	10,663	12,265	5,702	322	541,388
Missouri	248,459	155,894	599,629	506,038	142,692	310	15,632	30,992	6,144	5,783	1,711,573
North Carolina	19,667	96,584	163,916	36,811	285,904	587	21,529	18,376	6,426	594	650,394
Oklahoma	153,680	.....	60,773	194,452	190,527	2,150	3,660	8,912	6,470	481	621,105
South Carolina	.....	10,800	116,845	39,507	134,906	2,927	19,353	27,425	3,740	140	355,643
Tennessee	79,399	14,353	247,297	261,949	174,750	690	7,706	9,791	6,122	1,453	803,510
Texas	719,331	725,282	323,142	845,004	754,993	8,807	62,453	48,293	15,168	5,929	3,508,402
Virginia	.....	1,060,314	86,872	200,634	486,496	112	124,997	34,648	5,585	2,025	2,001,683
West Virginia	.....	31,048	138,011	248,366	1,526	.....	10,985	18,811	6,482	202	455,431
South	2,326,241	3,578,515	3,072,029	3,808,931	3,904,641	36,685	550,994	336,134	103,101	131,545	17,848,556
United States	25,365,381	15,214,973	36,504,311	14,274,274	9,676,999	81,447	1,571,916	882,790	328,388	1,047,486	104,947,965

"Aircraft" includes contracts for airframes; airplane engines, propellers, and other parts; and certain related equipment such as parachutes and aircraft pontoons, armament, instruments, and communication equipment are excluded. "Ships" include contracts for the construction of new vessels of all kinds; the purchase of used ships; and ship conversion, recommissioning, and repair. Propulsion machinery (when separately contracted for), armor, amament, navigation and radio equipment, parts, and materials are excluded.

War contracts and allocations of all Federal agencies and British Empire purchasing missions through September was $104,947,965,000. Of this, $17,848,556,000 has gone to southern states. Totals for each state in millions of dollars are shown in the map below.





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A LUBRICANT FOR EVERY INDUSTRIAL NEED

U. S. to Use 3 Trillion Cubic Feet of Natural Gas in 1943

An all-time high of more than 3 trillion cubic feet of natural gas will be used in the United States next year, E. Holley Poe, of the Office of Petroleum Coordinator for War, told members of the American Petroleum Institute recently.

Three trillion cubic feet of natural gas is approximately equivalent in heat energy to 124 million tons of coal, 879 billion kilowatt hours of electricity, or 540 million barrels of fuel oil.

Discussing conditions in various sections of the country, Mr. Poe said that, at present, the war industries of the Appalachian region are served entirely from gas fields in that area, but that "in the very near future, if that area is to be served adequately by the natural gas industry, thus freeing oil for other uses, there is no doubt that there will be a need for increased transportation facilities from the great reserves of the Southwest."

"Ability to supply the demand in the Mid-western cities is limited only by the deliverability of existing pipeline systems," he said.

"In some Mid-western sections, however, an acute shortage of natural gas supply may develop locally during peak periods. Michigan's gas reserves are relatively small. Illinois obtains practically no marketable gas from its own fields. Oklahoma is producing almost entirely from highly depleted pools."

The OPC official expressed belief that unless some major pipelines are constructed within the next 18 months, the Mid-west will probably not have an adequate supply of gas to meet all demands. He added that the greatest hope for new exploration and development was in the Southwest.

New Synthetic Rubber Plant for Kentucky

The Rubber Reserve Company has made a contract with the National Synthetic Rubber Corporation to operate a new government-owned synthetic rubber plant to be built in Kentucky by the Defense Plant Corporation.

The plant's output will be made generally available and allocated by the Government, together with the products of other government-owned synthetic rubber plants.

The five independent companies which participate in the ownership of National Synthetic Rubber Corporation are Goodall Rubber, Inc., and Hamilton Rubber Manufacturing Company, both of Trenton, N. J., Hewitt Rubber Corporation of Buffalo, N. Y., Lee Rubber & Tire Corporation of Conshohocken, Penna., and Minnesota Mining & Manufacturing Company of St. Paul, Minnesota.

National Synthetic Rubber Corporation represents a cooperative move among the independent rubber companies as a consequence of the war and the loss of crude supplies from the Orient. Although the companies are competitors, they have pooled substantial amounts of capital and provided a technical staff to manage the new synthetic rubber plant.

First Liberty Ship Launched in Georgia

The first Liberty ship to be launched in Georgia, the *James Oglethrope*, went down the ways of the Southeastern Shipbuilding Corporation, at Savannah, on Friday, November 20.

The new 10,500 ton vessel was sponsored by Mrs. Walter F. George, wife of the United States Senator from Georgia. Principal speaker at the launching ceremony was Rear Admiral Howard L. Vickery, Vice Chairman of the Maritime Commission.

The contract for the construction of the *James Oglethorpe* and 31 other Liberty ships was let by the Maritime Commission last February. The ship, named after the founder of Georgia, is expected to be delivered into service by the end of the year.

New Forest Research Development May Increase Naval Stores Yields

The successful rooting of mature slash pine cuttings, an accomplishment which may eventually open the avenue to greatly increased American naval stores production, is reported by the U. S. Department of Agriculture.

As far as is known, this is the first time any investigator has succeeded in rooting cuttings from mature southern pines. In rooting cuttings, research workers of the Department's Forest Service are planning to take advantage of the genetics principle that plants propagated vegetatively will retain all of the characteristics of the parent plant. This points to the possibility of producing high-yielding strains of turpentine trees from selected pines which will produce from two to three times as much as average trees now worked for naval stores.

This work foreshadows the possibility of future naval stores production developing largely on a plantation basis from superior trees, just as rubber, originally produced from natural forests, now is produced principally from plantations of superior strains.

Experimental work leading to this development was conducted by Harold L. Mitchell of the Southern Forest Experiment Station of the Forest Service. At the Olustee Experimental Forest in northern Florida, cuttings from mature trees were treated with a variety of plant hormones and nutrients and planted under carefully controlled conditions. The most successful treatments developed healthy roots after about six weeks in nursery beds.

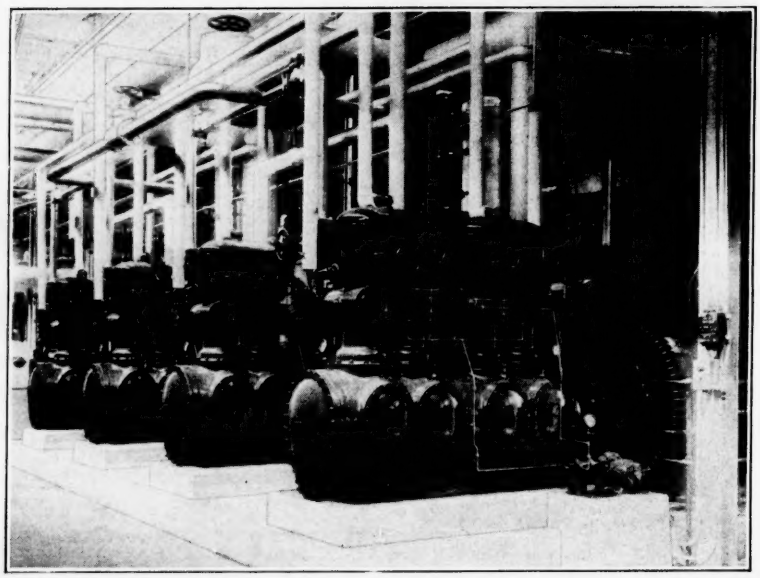
While the experiments with cuttings cannot be looked to as an immediate help in increasing naval stores production for war needs, another Forest Service research development recently announced by the Department—chemical stimulation of gum yield—promises substantial aid in meeting wartime goals. Large-scale tests of the process indicate that gum yields may increase as much as 50 per cent through application of certain chemicals to naval stores trees.

The experiments with cutting have not yet been carried beyond the laboratory and greenhouse stage. The next step is to determine how best to follow up on a large scale in order to produce thousands of the superior trees.

New 750-Ton Refrigerating System at Front Royal, Va.

The largest plant in the United States making viscose rayon is that of the American Viscose Corporation at Front Royal, Va. Opened last year, this plant, one of four owned by this company in the South, has every modern facility for large-scale continuous production; it operates day and night, seven days a week, making rayon staple fiber and the two high-tenacity viscose rayon yarns known as "Tenasco" and "Rayflex."

Accurate control of temperatures is a primary factor in production of high quality rayon. Most plants use cold water or cold brine as the refrigerating medium. At Front Royal four large Frick ammonia compressors, two enormous shell-and-tube brine coolers, with shell condensers, receivers, and complete auxiliary equipment, have lately been installed to take care of the increased capacity of the plant.



WAR needs the wires this Christmas

War can't wait—not even for Christmas. So please don't make Long Distance calls to war-busy centers this Christmas unless they're vital... BELL TELEPHONE SYSTEM

New Priority Orders Recently Put in Effect

(*Continued from page 36*)

M-265	Garment leather	11-28-42
M-267	Butter	11-20-42
M-271	Dairy products	12- 4-42

"L" LIMITATION ORDERS

Order	Addition	Title	Effective Date
L-1-e	Amend. #3	Motor trucks, trailers and passenger carriers	11-19-42
L-1-g		Motor trucks, trailers and passenger carriers	11-19-42
L-1-h	Amend. #1	Motor trucks, trailers and passenger carriers	11-19-42
L-6	Int. #1	Domestic laundry equipment	11- 7-42
L-7, L-7-a, L-7-b	Revoked	Domestic ice refrigerators	11-14-42
L-7-c		Domestic ice refrigerators	11-14-42
L-7-c	Sched. #1	Domestic ice refrigerators	11-14-42
L-18 & L-18-a	Revoked	Domestic vacuum cleaners	11-26-42
L-18-b	Amended	Domestic vacuum cleaners	11-26-42
L-18-c	Int.	Domestic vacuum cleaners	11-12-42
L-18-c	Amended	Domestic vacuum cleaners	11-20-42
L-23-c	Amend. #4	Domestic cooking appliances	11- 9-42
L-23-c	Amended	Domestic cooking appliances	12- 2-42
L-23-d		Domestic cooking appliances	12- 3-42
L-28-a	Int. #1	Incandescent, fluorescent and other electric discharge lamps	11-14-42
L-30	Revoked	Kitchen, household and other miscellaneous articles	11-17-42
L-30-a		Kitchen, household and other miscellaneous articles	11- 7-42
L-30-b	Int. #1	Kitchen, household and other miscellaneous articles	11-23-42
L-30-d		Miscellaneous cooking utensils	11-17-42
L-31	Amended	Natural gas	11-12-42
L-31-a		Natural gas	11-24-42
L-36		Umbrella frames	11-12-42
L-41	Int. #2	Construction	11- 6-42
L-41-b	Int.	Construction	11- 6-42
L-54-c	Amended	Office machinery	11-11-42
L-59-b		Metal plastering bases and accessories	11-13-42
L-70	Amended	Motor fuel	12- 1-42
L-72	Amended	Razors and razor blades	11- 3-42
L-81	Amended	Toys and games	11-24-42
L-82	Revoked	Construction equipment; power cranes and shovels	11- 7-42
L-82-a	Revoked	Construction equipment; power cranes and shovels	11- 7-42
L-92	Amended	Fishing tackle	11-18-42
L-97-a-1	Amended	Railroad equipment	11-24-42
L-99	Amend. #2	Bag osnaburg and bag sheeting	11- 6-42
L-112-a	Amend. #1	Industrial power trucks	11-10-42
L-114	Amended	Safety equipment	11-27-42
L-116	Amend. #2	Women's and children's clothing	11- 6-42
L-117	Amend. #4	Heavy power and steam equipment	11- 2-42
L-120 Sched. I	Amended	Paper standardization and simplification	11-30-42
L-120 Sched. VI	Amended	Paper standardization and simplification	11-30-42
L-123	Amended	General industrial equipment	11-24-42
L-150	As Amended, Amend. #1	Douglas fir plywood	11-14-42
L-154	Sched. #III	Power, steam and water auxiliary equipment	11-21-42
L-169		Shirts, (exclusive of work shirts) and pyjamas	11-25-42
L-170	Amended	Farm machinery, equipment, attachments and repair parts	11-25-42
L-170-a		Farm equipment and machinery	11- 7-42
L-172	Amend. #1	Heat exchangers	11- 2-42
L-174	Amend. #1	Manufactured gas	11-12-42
L-176	Int. #1	Portable electric fans	11-21-42
L-177		Wallpaper	11-13-42
L-178	Amended	Film	11-21-42
L-183	Int. #1	Electric equipment	11- 7-42
L-187		Low pressure cast iron boilers	11- 6-42
L-187	Amend. #1	Low pressure cast iron boilers	11-14-42
L-190	Int. #1	Scales, balances and weights	11-23-42
L-192		Construction machinery and equipment	11- 7-42
L-192	Amend. #1	Construction machinery and equipment	11-17-42
L-197	Amend. #3	Steel shipping drums	11-13-42
L-208	Amend. #1	Gold mining	11-19-42
L-208	Amended	Gold mining	11-25-42
L-209		Wire cloth for making pulp, paper and paperboard	11- 2-42
L-211	Sched. #3	Barbed wire, wire fence, poultry netting and flooring	11-12-42
L-216		Portable tools simplification and standardization	12- 4-42
L-216	Sched. #1	Portable tools simplification and standardization	12- 4-42
L-217		Construction machinery and equipment simplification	11-17-42
L-217	Sched. #1	Construction machinery and equipment simplification	11-17-42
L-218		Douglas fir lumber	11- 6-42
L-221		Electrical motors and generators	12- 2-42
L-223		Hard-facing materials	12- 2-42
L-228		Asphalt, asphalt shingles and tarred roofing products	11-24-42
L-230		Military arms	11-16-42

(*Continued on page 156*)

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in the Seaboard Southeast

FOR MANY YEARS we have helped industry by furnishing reliable surveys on industrial locations in the Seaboard Southeast.

MORE RECENTLY we have likewise assisted numerous Government agencies by supplying authentic reports on various parts of our territory.

OUR PRIME OBJECTIVE:—To contribute to our Country's war effort in every possible way until victory is won.

INDUSTRIAL DEPARTMENT
SEABOARD
AIR LINE RAILWAY

WARREN T. WHITE
General Industrial Agent
Norfolk, Va.

Behind the Fighting Front . . .

Grim and tough, he and his buddies are out there somewhere — fighting. And here at home, millions of more Americans are training intensively, getting ready to join them.

The tremendous expansion of our armed forces and the huge production for war demanded the biggest transportation job in history. That meant railroad transportation — uninterrupted, all-weather mass transportation throughout the vast expanse of this land. The demands are being met — efficiently and safely.

Since Pearl Harbor the railroads have moved millions of troops; thousands of trainloads of raw materials from mines, forests, and fields to war plants, thousands of trainloads of the finished implements of war when and where they were needed.

This, plus necessary civilian traffic, all adds up to a tremendous increase — and when war necessities have made it well nigh impossible to get additional equipment. The railroads are getting every spark of service out of every unit of equipment they own.

Today, the trains of the Norfolk and Western and the other American railroads are rolling as never before. And, with the continued cooperation of shippers, the railroads and government, they will keep on rolling until they have moved the last fighting man and the last fighting machine for the final offensive that will smash the enemies of the United Nations.

This year, the people of our nation will not observe the Christmas season in the usual happy American way. But it is the sincere wish of the Norfolk and Western Railway and the Norfolk and Western Family that you will find a new happiness in meeting your responsibilities to your country, and fulfilling your obligations to the American boys who are fighting and giving their lives so that "peace and good will among men" may once again have real meaning throughout the world.

Norfolk and Western Railway

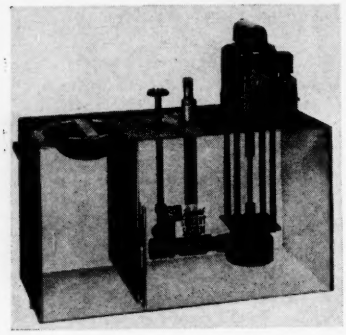
PRECISION TRANSPORTATION

BUY U. S. WAR BONDS

New Methods and Equipment

Gray-Mills Portable Coolant System

A new portable coolant system using a centrifugal pump, designed to deliver controlled coolant flow from 10 to 1,000 gallons per hour, has been announced by Gray-Mills Co., 213 W. Ontario St., Chicago, Illinois. The new Model G-10A unit supplements two other model series in the company's line of portable coolant systems. It provides large coolant volume and high flushing capacity, making it particularly applicable for multiple spindle and deep drilling work, drill press installations, large cut-off machines, large



grinders, large milling machines, large turret lathes, and as a stand-by unit for central systems.

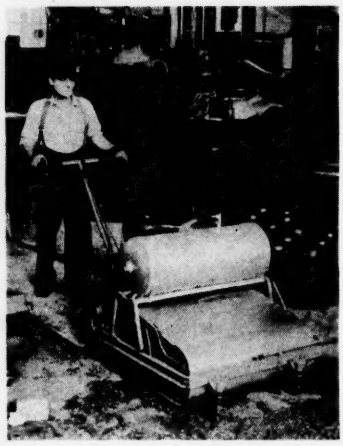
The centrifugal pump is a high stress casting, with sleeve bearings. \Intake orifice is 1¼ inches; discharge 1 inch. Both 1- and 3-phase ¼ horsepower motors, 110/200 or 220/440 volts respectively are available. The 40-gal. capacity tank is 16 inches deep, 16 inches wide, and 36 inches long. Double baffle plate provides forced settling.
I"fozI-:lot

Asphalt Flooring Over Wood Base as Alternate for Steel and Concrete

With steel on the critical list, many plants requiring heavy-duty flooring and accustomed to steel or reinforced concrete, are said to be finding a satisfactory substitute in other materials, some of which have definite advantages. A product of this type, known as Elastite Industrial Flooring, has been introduced by The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio. Advantages claimed for it are: Hardness, toughness and density, which offer a high degree of resistance to wear and abuse, ability to withstand moving loads of great intensity, resiliency, non-skid surface, resistance to fire and moisture, dustless surface, reasonable cost and low maintenance.

Motorized Factory Sweeper

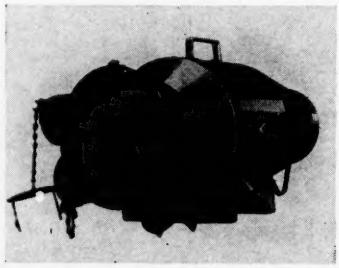
Breaking away from the broom, pan and wheelbarrow, long-time requisites for sweeping industrial and manufacturing plants, the Moto-Mower Company, Detroit, Mich., announce that they have adapted their tractor to a third purpose —that of factory sweeping. Consistent with modern shop practice, the Moto-Sweeper releases men to do other work



around the shop. It is easy to operate and turns right or left under its own power by means of a separate clutch on each wheel of the tractor, controlled at the handlebar. An accompanying illustration shows the Moto-Sweeper, the tractor used being the same as used in the Commander Lawn Mower. It is working in a medium sized plant making jigs and fixtures and picks up heavy metal machinings as easily as lighter dust and dirt. For plants with large floor space, a sulky is available as optional equipment. Innovations added to later models are a spray which can be adjusted to lay the dust but not wet the floor, and a heavy bumper for the larger models. There are three models, two of which are motorized. In addition to lawn mowers and sweepers, the Commander tractor is also adapted to a snow plow.

"OCTOPUS JR." Exhauster and Blower

The "OCTOPUS JR." is a small yet powerful exhauster and blower unit made by Chelsea Fan & Blower Co., Inc., 1206 Grove Street, Irvington, N. J. to eliminate gas fumes, etc., from closed-in places, such as shipholds, welding rooms, tunnels, vaults, etc. It is powered by a ¾ H. P. ball bearing motor—sucks or blows 2,000 C.F.M. and operates in any



position, weighing 70 pounds. There are adapters for three 4 in. nozzles, or four 3 in. nozzles for flexible hose. Each 4 in. hose will exhaust 250 C.F.M., and each 3 in. hose over 200 C.F.M.

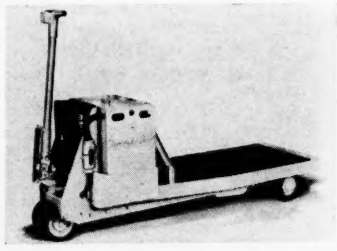
Osborn Brush Eliminates Many Operations in Cleaning Cavities of Metal

Brushes that look like discs with two square corners and rotate like a spinning coin are being produced by the Osborn Manufacturing Company of Cleveland, Ohio, for removing rust, scale, rubber, burrs, sharp corners, dirt and chips from metal holes, cavities and recesses. Extensively used in industry, these brushes, known as "Sibot" Brushes, will clean both the bottoms and side walls in the cavities of various machined, stamped, cast and forged parts in one operation. R. O. Peterson, manager of the Technical

Department of the company, points out that while the most important feature of the "Sibot" brush is its ability to contact both the sidewall and bottom at the same time, it is particularly applicable to fast methods of production and to relatively easy adaptation to existing production equipment. It may be used, for instance, inserted into the chuck of an ordinary drill press. Osborn "Sibot" brushes are made of wire in two ringlock sections with a metal shank in between.

HydroLectric Hand Lift Truck

HydroLectric, a motorized hand lift truck having rear wheel drive and automotive gear transmission with excess motor and battery power is manufactured by Lift Trucks, Inc., Cincinnati, Ohio.

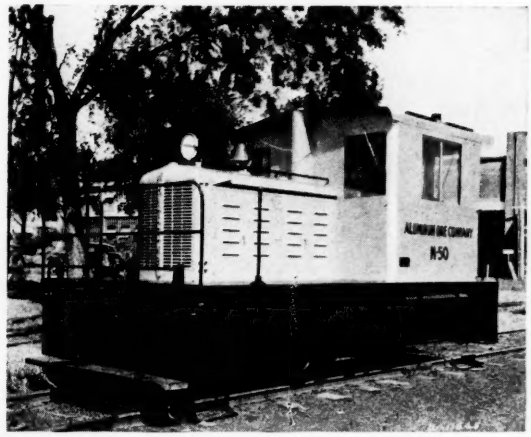


Maximum loads are easily lifted through a powerful hydraulic ram. Then, by pressing the patented finger control, heavy loads are moved forward or backward, without effort.. Advantages of the HydroLectric include: Powerful motor; large battery; rear load wheel drive to insure positive traction; four wheel construction for safety and stability; and finger tip control.

POWERFUL PERFORMANCE—AT LOW OPERATING COST

The story of the Whitcomb locomotive is simple. For thirty-five years Whitcomb has been concentrating on the development of industrial locomotives. By limiting the objectives to fundamentals, progress has been rapid. The objectives are these: low cost maintenance, sturdy construction, power to spare, efficient and dependable operation. In line with these objectives, Whitcomb engineers have concentrated on simplicity, the elimination of all unnecessary complications and built a power unit that stands out as the most practical industrial locomotive made today.

There is a Whitcomb locomotive for your service. Let us tell you more about it in detail. Write today.



DIESEL—GASOLINE—ELECTRIC—*The products of a pioneer.*

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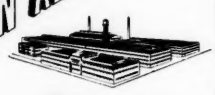
RIGHT DOWN OUR PRODUCTION ALLEY



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We need work — you need help — let's get together.

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Stewart offers competent engineering service; on time deliveries; best workmanship and the highest financial rating obtainable. When writing, please send specifications and complete information.

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Punch Presses • Shears Power Brakes • Spot, Arc and Gas Welders Drill Presses • Bull Dozer Forming Equipment • Automatic Saws • Heat Treating Furnaces • Finishing Equipment • Tool Room Equipment.

Stewart FABRICATORS OF IRON · STEEL · WIRE

ANGLES · FLATS · ROUNDS · SQUARES · TEES · STRIPS · SHEETS · PLATES

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GARY-STAIR-TREADS
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Industrial News

F. J. Weschler, Chain Belt Vice President Dies

Frank J. Weschler, vice-president of the Chain Belt Company of Milwaukee, and general manager of Baldwin-Duckworth, a division of Chain Belt Company at Springfield and Worcester, Massachusetts, died suddenly on November 10th in Worcester.

Mr. Weschler rose from clerkship in the cycle industry to become president of the Indian Motorcycle Company in 1923. His interests were later extended to the Baldwin-Duckworth Chain Company which was later merged with the Chain Belt Company, of which he became vice-president in 1939, while retaining the position of general manager of Baldwin-Duckworth.

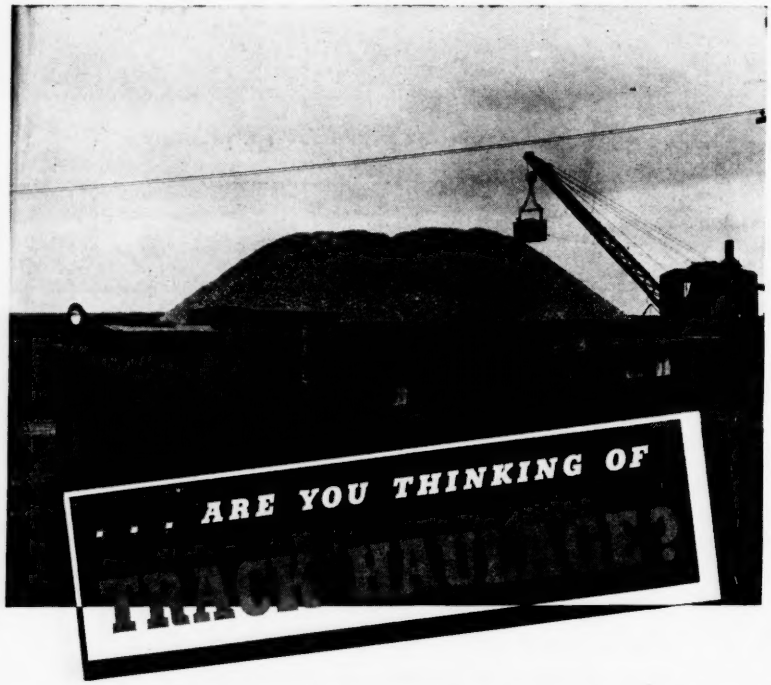
A man of widely known ability, he had been a vice-president of the Associated Industries of Massachusetts, a director of the Chamber of Commerce, as well as a number of banks.

Mathieson Alkali Appointments

Esse E. Routh has been elected Vice-President and Director of Sales for The Mathieson Alkali Works, Inc., New York, in place of John A. Kienle, who retired on November 18, after 22 years service with the company. Mr. Routh has the distinction of having spent his entire business career with this one company. From 1920 to 1928 he served as Southern Sales Manager. Replacing Mr. Routh as General Manager of Sales is D. W. Drummond, who has been assistant to Mr. Routh since 1941. Robert J. Quinn becomes Assistant to Mr. Routh.

Norton Company Appointment

C. A. Babbitt of Norton Company, Worcester, Mass., has been appointed Field Engineer for the territory comprising New York City, New Jersey and Philadelphia. He will make his headquarters at the Norton Philadelphia office.



Perhaps the curtailment of rubber has put your plant on the "spot." You've got to do something about the problem of material handling. It is possible that track haulage is the answer. If so, investigate Plymouth Locomotives for their versatility, dependability and low initial cost. Plymouths have a record behind them . . . a record for low cost operation, minimum upkeep and dependable performance. Plymouths are built to stand up in all kinds of service and under all conditions.

While our plant is "geared up" on work for Uncle Sam, we can possibly co-operate with you in the installation of track haulage. Write and tell us your requirements . . . no obligations, of course.

PLYMOUTH GASOLINE and DIESEL LOCOMOTIVES

PLYMOUTH LOCOMOTIVE WORKS

Division of The Fate-Root-Heath Co. PLYMOUTH, OHIO, U. S. A.

Southern Railway Appointments and Promotions

The Southern Railway System, Washington, D. C., announces through L. E. Wetterau, executive general agent, the appointment of Charles W. Cowl, general eastern freight agent at New York City, to the position of assistant general freight agent at Birmingham, and the promotion and transfer of Lowell C. Adcock from division freight agent at Birmingham to assistant to freight traffic manager, with headquarters at Washington. Earl Brown, district freight agent, will succeed Mr. Adcock as division freight agent at Birmingham, while Harvey H. Peters, commercial agent, will be promoted to the position of district freight agent, and Dewey E. Manderson will succeed Mr. Peters as commercial agent.

Former Vice-President and General Manager of Novo Engine Company Dies

Eric P. Teel, former Vice-President and General Manager of the Novo Engine Company, Lansing, Mich., died at his home several weeks ago. He was prominent in contractors machinery manufacturers organizations, having been chairman of the Contractors Pump Manufacturers Bureau. One of the original organizers of this group, he served as chairman for three years. He joined the Novo Engine Company in 1908 as shop superintendent and was made vice-president and general manager in 1932, upon the death of his predecessor, Clarence E. Bement.

CLETRAC Adds Industrial Relations Executive

Wallace L. Cook, formerly Director of Personnel and Training for the Chicago District of The Carnegie Illinois Steel Corporation, and more recently Assistant Chief of Personnel for the entire company with headquarters in Pittsburgh, has been appointed Manager of Industrial Relations of The Cleveland Tractor Company of Cleveland, Ohio. Holding a Bachelors Degree from Cornell University and a Masters Degree from Yale University, where he specialized in Industrial Administration, Mr. Cook has followed Industrial Relations and Management work for the past twenty years, formerly holding the position of Executive Secretary of the New York Employing Printers Association.

Trade Literature

MONEL AND ROLLED NICKEL—
House Organ—"Nickelsworth," Vol. IX, No. 4, for the fourth quarter of 1942, illustrated, with timely suggestions and information regarding the industrial uses of monel metal and nickel; distributed by the suppliers of Monel and Rolled Nickel, and published by—
The International Nickel Company, Inc., 67 Wall St., New York, N. Y.

DRI-AIR CHEMICAL POWDER AND DRI-AIR UNITS—
Folder—illustrating and describing DRI-AIR Chemical Powder and DRI-AIR Units to end dampness, stop mold and mildew, eliminate musty odors in basements, game rooms, closets, photo dark rooms, work rooms, etc.
Tamms Silica Company, 228 N. La Salle St., Chicago, Ill.

CRANES, HOISTS, AND HANDLING EQUIPMENT—
Booklet—"Whiting Products for Industry" gives pertinent facts with illustrations on varied product lines, including Cranes, Railroad and Aviation equipment, Cupolas and Foundry equipment, Quickwork products, Swanson evaporators and filters, and other special Whiting equipment for heavy industries.
Whiting Corporation, Harvey, Illinois.

HYDRAULIC DREDGES—Bulletin No. 177 is copiously illustrated with attractive photographs of hydraulic dredges for every kind of service. The new catalog, for that it what it is, includes sectional views and exteriors, dredges at work on various operations such as sand and gravel production, reservoir deepening and enlargement, waterways improvement, shore line development and complete descriptions of many types of centrifugal pumps and accessories. It is an interesting work, and copies may be had by addressing **Morris Machine Works,** Baldwinsville, New York.

(*Continued on page* 52)

Geared To The Needs Of 1943

In the field of industry, Virginia's largest and Richmond's oldest bank has a 77-year record of exceptional service.

Its facilities today are geared to the needs of 1943. It is meeting wartime conditions. It can be helpful to you in loans, in commercial banking and in many other ways.

We'll also work with your own bank. Get in touch with us.

FIRST AND MERCHANTS
National Bank of Richmond

John M. Miller, Jr., Chairman of the Board • H. Hiter Harris, President

CAPITAL AND SURPLUS SIX MILLION DOLLARS

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SCREWS for every need

You can depend on us for

QUALITY·EFFICIENCY·SERVICE

SAMUEL J. SHIMER & SONS

MILTON, PENNSYLVANIA

We have helped

many businesses that have brought us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*

BALTIMORE, MARYLAND

Member Federal Reserve System
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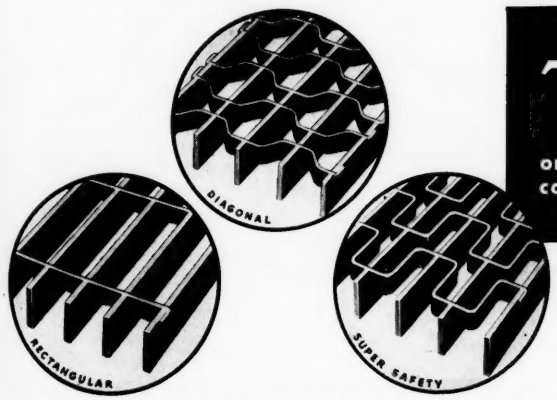

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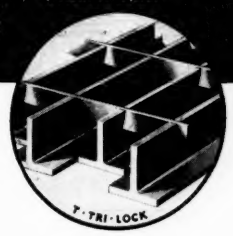
CONCRETE ARMORING T. TRI-LOK

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.



DRAVO CORPORATION
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

Trade Literature

(*Continued from page* 50)

INDUSTRIAL TRUCKS, TRACTORS AND TRAILERS—

Catalogue—informative and attractively illustrated, dealing with approved models of Mercury industrial trucks, tractors and trailers under the W.P.B. Limitation Order L-112; publication contains minimum of exposition and deals specifically with salient factors; included is an explanation of procedure for ordering a truck under order L-112, description and specifications on various models, and an explanation for the application for each type of equipment. **Mercury Manufacturing Company,** 4128 S. Halsted St., Chicago, Ill.

ROSS SUPERTHERM HOT WATER HEATING—

Folder—illustrated, briefly detailing many advantages of the Ross Supertherm Heating System over steam heating, with information concerning a number of applications of this modern hot water system. **J. O. Ross Engineering Corporation, Division of Ross Industries Corporation,** 350 Madison Ave., New York City.

BLACKMER SANITARY PUMPS—

Bulletin 115—illustrating and describing the Blackmer line of sanitary pumps. **Blackmer Pump Company,** Grand Rapids, Mich.

WALL AND CEILING LINING—

Booklet—illustrating and describing the application of Upson STRONG-BILT Panels for wall and ceiling lining to speed construction of war housing and other buildings. **The Upson Company,** Lockport, N. Y.

AMERICAN ECON-O-MATIC DRIVES—

Catalog ED-42—illustrating and describing American Econ-O?Matic Drives, publication designed for executives, engineers and shop men concerned with getting the fullest use of power, increased production, and conservation of power-transmission materials. **American Pulley Co.,** 4200 Wissahicken Ave., Philadelphia, Pa.

REDUCTION DRIVES—

Catalog R-42—illustrating and describing American Reduction Drives, made in six sizes from ½ to 25 horsepower. **The American Pulley Company,** 4200 Wissahickon Ave., Philadelphia, Pa.

"Industrial Directory for the State of Louisiana" has just been published by the State Department of Commerce & Industry, and is believed to be the first such directory ever published in the history of the State. Approximately 3000 manufacturers and processors are listed by parish with name, address, and product. There is also an alphabetical list of all enterprises by type of industry. Copies may be obtained from the State Department of Commerce & Industry at Baton Rouge.—Price $1.00.

"Men, Machines and Morals" is the title of a book by Julian Street depicting the story of Franklin G. Smith, 50 years as executive head of The Osborn Manufacturing Company, of Cleveland. Illustrated by Wallace Morgan the 75 page book is a commentary upon an executive's ability to select and make use of capable men, regardless of race, creed, or previous station in life in the building of a company which is now the world's largest manufacturer of industrial brushes and foundry moulding machines. Denison University Press, Granville, Ohio.

"Not This Trip, Old Pal" — The foregoing is the title of a picture of the first World War, showing a soldier bidding farewell to his hunting dog, and made its debut about 25 years ago. It was done by Arthur D. Fuller, magazine illustrator, for the 1918 calendar of the Hercules Powder Company, Wilmington, Del., and will make its second wartime appearance on the Hercules 1943 calendar. The painting is of a soldier in uniform, rifle in hand, leaving his gate to join khaki-clad troops marching off to war. The setter, seeing his master with a gun, thinks they are bound on another hunting trip and causes his master to use the words above. The 1943 calendar is dedicated to "Americans who are fighting and working for Victory."

Rayon Fights on Two Fronts

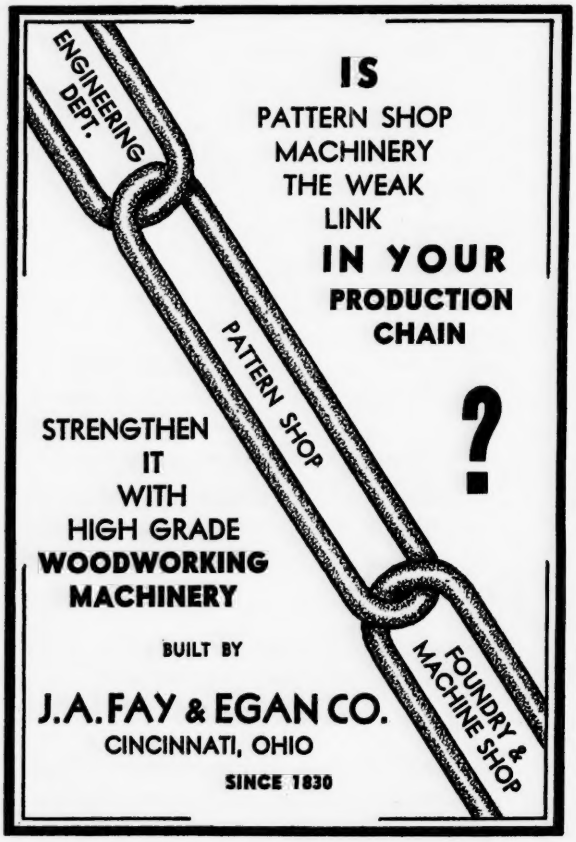
(*Continued from page* 29)

A large amount of ground work was necessary to establish the new export program on a workable basis, as export shipments of rayon had been very limited in previous years. This work was undertaken early in 1942 and by the end of the year the Good Neighbor shipments were going forward in accordance with carefully worked out plans.

Rayon in the Hosiery Industry

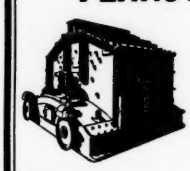
Throughout the year 1942 the rayon industry, in accordance with an order of the War Production Board, after providing for war uses and export requirements, set aside 17 per cent of the remaining production of viscose and cuprammonium yarn and 6 per cent of the remaining acetate yarn for silk replacement. The bulk of these allotments went to the hosiery industry which, in common with other silk users, was deprived of its cus-

(*Continued on page* 54)



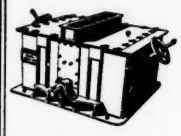
HOLIDAYS ARE SWELL— BUT THERE'S SOMETHING ABOUT THE FACTORY I MISS NO END!
Specify
VICTORIA TOILET TISSUES
Single Fold, Double Fold, or Black Core—for high quality at low cost. The Victoria Paper Mills Company, Fulton, New York.
Founded in 1880

"PENNSYLVANIA" CRUSHERS



HAMMERMILLS

The Central Feed REVERSIBLE is the most outstanding advance in Hammermill design in 20 years. REVERSIBILITY is an exclusive "Pennsylvania" feature. For Limestones, Cement Rocks, Gypsums and wide variety of Chemicals and Industrial Minerals. Automatic hammer turning. Adjustable Cages . . . Tramp Iron protection. Steelbuilt. Patented.



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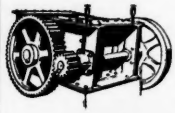
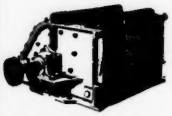
An advanced, new type that reduces by direct impact. For high Silicas, Clinkers, Slags, Chrome and Manganese Ores, Furnace Refractories, etc. Makes "cubing" particle shape, not "slivery". Several sizes. Patented.



SINGLE ROLLS

An advanced design, specialized for Coal Preparation in Mines, Cleaning Plants, Gas Works and Power Plants. Sizes for Chemicals and Industrial Minerals. Automatic Tramp Iron Protection, quick adjustability from ¾" to 8" sizing. Powerful Steelbuilt construction. Patented.



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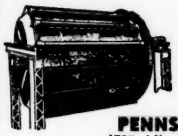
Granulate materials of medium hardness . . . Bituminous coal, . . . Gypsum Rock, etc., to produce sizes ⅛" to 2", with minimum fines and oversize. Operation practically dustless. Steelbuilt. Patented.



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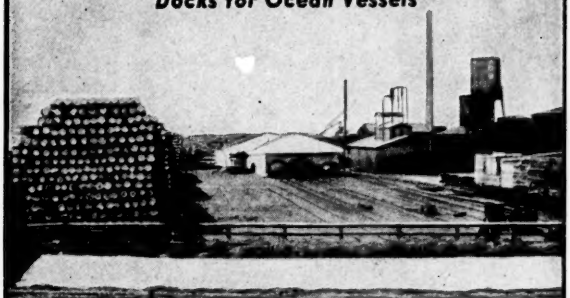

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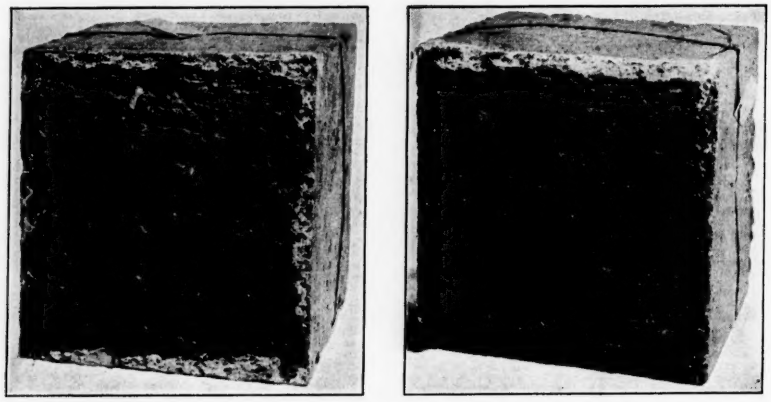
A cement dispersing and air entraining agent known as HP-7 which, when added to a paving mix, is claimed to improve all the essential qualities of concrete—transverse strength, resistance to wear, freedom from scaling. Furthermore, it is claimed that this is accomplished with little or no increase in cost, and in some cases with an actual reduction.

HP-7, has recently been placed on the market by the Master Builders Co., of Cleveland, Ohio, is essentially a combination of an air-incorporating agent (sodium lauryl sulphate) with a cement-dispersing agent (a derivative of lignin sulphonic acid).

Maximum dispersion of cement in the mix has long been recognized as necessary to the attainment of maximum strength and economy. The introduction of air however, is a newer development which is not so generally known or understood. Small amounts of entrained air permit the use of lower water-cement rations, reduce bleeding, and appear to add to the durability of the product—especially as regards scaling.

The manufacturer points out that as HP-7 is a mixture of definite compounds in definite proportion, its use is subject to perfect and complete control. It is noted also that while these ingredients can be used separately, and each is effective in its own way, it is only by the combination that the fully beneficial effect is attained.



Blocks of cement, without HP-7 at left and with HP-7 at right.

A 24-page pamphlet entitled, "Cement Dispersion and Air Entrainment in Concrete Pavement Construction," by Edward W. Scripture, Jr., Director of the Master Builders Research Laboratories, is available from the manufacturer. It contains a detailed and partly technical account of the character, development and use of HP-7 and of other products intended for the same ends; and includes reports of tests on various ordinary and special concretes at 3, 7 and 28 days.

Edward St. Clair Buckler

Edward St. Clair Buckler, for more than 40 years a member of the staff of the MANUFACTURERS RECORD and its construction publications, died November 28, a few days following a heart attack. Born in Baltimore but taken to St. Mary's County as an infant, Mr. Buckler was reared in that southern Maryland community, where he was educated at the Charlotte Hall school. He was a member of the bar and also a graduate of Strayer's Business College.

He was instructor at this latter institution, as well as at several county schools. Mr. Buckler joined the MANUFACTURERS RECORD force about 1900. Nine years later he married Miss Clara Insley. Active in church affairs, he was a member of the First Baptist Church, Baltimore, being a deacon and young men's bible teacher. Interment was at Mount Zion Cemetery, Laurel Grove, near the scene of his childhood. In addition to Mrs. Buckler, Mr. Buckler is survived by a son, Edward St. Clair, Jr., of Baltimore.

R. I. Ingalls, Jr., Elected President

Robert I. Ingalls, Jr., has been elected President of The Ingalls Iron Works Company, Birmingham, Alabama, to succeed his father who will remain Chairman of the Board.

Rayon Fights on Two Fronts

(*Continued from page* 52)

tomary raw material by the cessation of silk shipments from Japan. Development work aiming toward steady improvement in the quality, appearance, and service properties of the new rayon hosiery continued very actively during the year in the laboratories of the leading rayon producers and other research units.

War demand for rayon affected the hosiery situation by absorbing all the extra strength viscose rayon yarns. Certain types of these yarns had been developed specifically for use in hosiery. Their application in this field must now wait until after the war is over. Meanwhile, standard rayon yarns are being used and the quality of rayon stockings was very greatly improved during the year.

Rayon staple fiber at present is making only a small contribution to military equipment, but it is probable that its use for military purposes will increase materially during the coming year. At present it is used in spun rayon curtains for United States warships, in uniform interlinings, and in special lint-free wiping cloths for range finders, binoculars, telescopes and other Army and Navy optical equipment.

Numerous spun rayon and wool blended fabrics have been made which the Army has been studying and testing for blouses, trousers and overcoating material as well as for shirtings and underwear. It is not expected, however, that these materials will be adopted immediately for general use in the various services.

However, due to the excellent showing of such blends they may be adopted for uniforms for civilian defense work, not only because of their warmth and durability but also because of their relatively ow cost.

It is expected that all spun rayon fabrics will become of importance during the coming year in uniforms for the nation's army of women war workers. Well made fabrics of the types developed for this purpose have excellent wearing qualities as well as attractive appearance.

Apart from these wartime uses, rayon staple fiber is playing a part of real importance in providing essential clothing for the civilian population and in replacing imported textile fibers that are not now available. Some of its manifold uses in these fields were indicated earlier in this article.

The facts given above will, it is hoped, show in some measure how rayon today is fighting on the nation's military and home fronts. During World War I, the United States' yearly production of rayon approximated no more than 6,000,000 pounds. This was not sufficient to be of help in making up shortages in the natural textile fibers. Today, our country is fortunate in having an annual production of over 600,000,000 pounds of rayon. The situation with regard to textile materials for war and for civilian use would be far more difficult than it is, were this supply of the most versatile man-made textile fiber not available for use.

Sciaky Rocker Arm Resistance Welder

Embodying all features found in the regular line of Sciaky Rocker Arm Resistance Welders, a new model known as Type PMCR, 2816 for spotwelding aluminum and its alloys, has been introduced by Sciaky Bros., 4915 W. 67th St., Chicago, Ill. These features include "stored energy with preheating and variable pressure with recompression," in addition to several unique advantages over conventional type welders. Among the latter are adjustable electrode tips which may be set at any angle without impairing their proper welding position, and gauges and dials set on the frame of the machine visible to the operator. The machine supplies a total pressure of 3,000 pounds between the electrode tips from a supply line of 90 pounds, using a normal throat depth of 34 inches. It has a welding capacity of .080 in. plus .080 in., 24ST Alclad. The welding stroke is ½-inch and tractor stroke 3 ½ inches. A special plate face at 45 degrees can be incorporated with the vertical face plate for special work.

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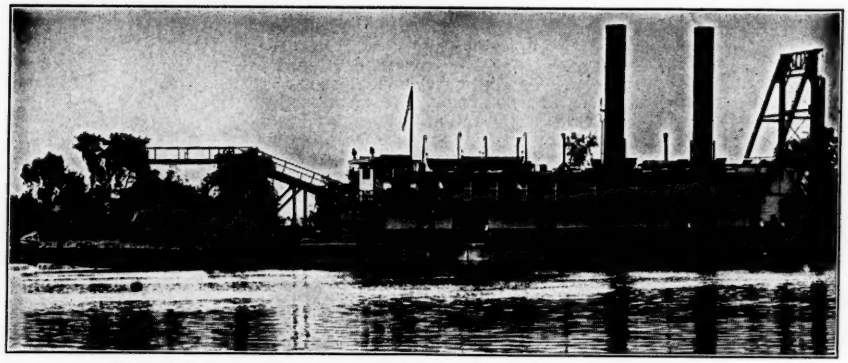

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New Priority Orders Recently Put In Effect

(*Continued from page* 46)

"P" PREFERENCE RATING ORDERS

Order	Addition	Title	Effective Date
P-43	Revised	Research laboratory supplies and equipment	11- 5-42
P-98-c		Petroleum production, refining, marketing and transportation	12- 1-42
P-118	Amended	Dairy products plants, maintenance and operation	11-12-42
P-118	Amended	Dairy products plants, maintenance and operation	11-27-42
P-131	Amended, Amend. #1	Officers uniforms	11-14-42
P-135		Reagent chemicals	11- 5-42
P-136		Processors of metal scrap	11- 6-42

"E" EQUIPMENT ORDERS

Order	Addition	Title	Effective Date
E-1-b	Amend. #3	Machine tools	11- 5-42

Installing a Giant Switchboard

(*Continued from page* 32)

ten jacks for each 100 lines. These so-called "attendant connector jacks" terminate on ten connectors which are in turn cross-connected with a 100-line group in the switching system. Thus, an operator taking an outside call for a War Department extension, merely plugs an idle calling cord in the proper 100-line group and dials the last two digits of the individual extension number.

The telephone cables within the Pentagon Building itself will, when completed, contain nearly 150 million feet of wire. To connect the building's switchboard with the satellite across the river calls for more than 1,500 trunk lines. Trunks and tie-lines to Long Distance, to other Government departments, to the interdepartmental switchboard require another 780 trunk lines. Statisticians have figured that the wire used in these various trunks runs to 364 million feet—enough to girdle the globe nearly three times.

7 Ships Launched on December 7

(*Continued from page* 26)

weekly pay roll participated in this special Bond program and it is expected that the total authorized to be deducted on Pearl Harbor day will exceed $50,000.

Tasco workers are already above the 10-percent goal set by Secretary Henry Morgenthau, as the Company has reported better than 10 percent ever since their campaign got under way last June. On November first, Tasco workers had authorized 10.6 percent of their regular weekly salary to be deducted for the purchase of War Savings Bonds. In addition, more than $25,000 in cash purchases are made by workers each month, and nearly 95 percent of all men and women on the Company pay roll are participating in the Pay Roll Deduction Plan.

The Federal Manpower Muddle

(*Continued from page* 25)

day the Commerce Department employs 24,000, as compared to 10,000 in 1919. The Interior Department has 47,500 employees, or three times as many as in 1919. The Agriculture Department has 47,500, or four times as many as in 1919. Nor does this latter figure include the 100,000 agricultural committeemen, costing the government $50,000,000 a year. In addition, forty new agencies, which the Federal government did not seem to need during the last war, are draining 252,853 employees from the available total.

These comparisons merely indicate the bureaucratic trend of our government. The trend has by no means slackened. Like a rolling snowball, its size increases daily as it gathers momentum. Only immediate and drastic action by Congress will prevent a continued increase in civil service employees above the 3,000,000 mark. The agencies themselves show no enthusiasm for curtailing nonwar functions or for transferring un-needed employees to vital war work. In fact, their hunger for personnel becomes ever more ravenous. The Office of Price Administration, for example, has set its goal as 90,000 employees, and bids well to succeed in that enterprise unless Congress takes action to prevent it. Actually, if these vast hordes of employees are necessary, they should be transferred from other government agencies overstocked with personnel or recruited from voluntary workers, as was done in the last war.

It is imperative that the people of the United States become aware of this shocking abuse of manpower in the Federal government. It is imperative also that they force Congress to take whatever action is necessary to eliminate those agencies of the government which are of no vital wartime benefit; that they force the curtailment of all nonessential spending; and that they promote the transfer or release of all unnecessary government workers to essential war work.

Unless this is done, and done quickly, there is no doubt that the overstaffing and inefficiency of the various boards, bureaus and commissions of the Federal government will, in themselves, constitute a serious peril to our war effort. Jurisdictional avarice—that competition between department heads seeking control of a government agency—must be ruled out for the duration. Unneeded agencies or bureaus must transfer their personnel to those contributing to the war effort. Duplication of functions must be eliminated. Pyramiding bureaucracy must be eradicated before it extends its autocratic control over the lives of all our citizens.

Excluding the civil service employees now engaged in mechanical and construction work, one may state with certainty that fully one-third of the entire

(*Continued on page* 58)

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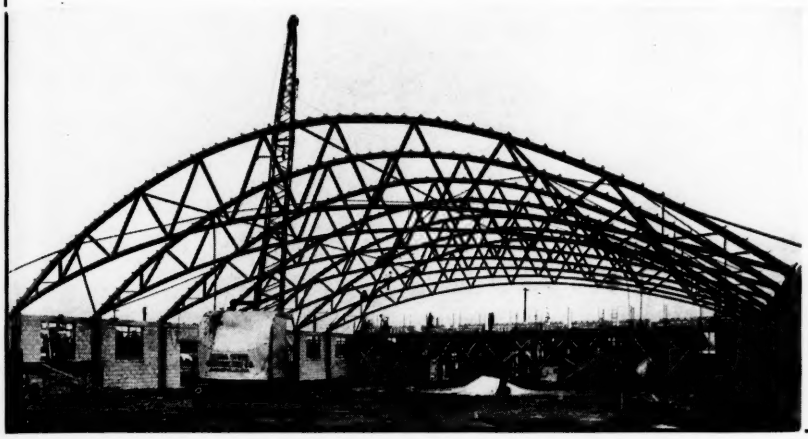

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New Electric Plant Brings Arkansas Other Industries

(*Continued from page 33*)

aluminum plant in Arkansas and to other war industries in the Southwest.

Through expenditure of some four million dollars of their own funds, the power companies in this pool built interconnecting transmission lines and made a contract to supply 65,000 kilowatts of energy at 95 per cent load factor to the Arkansas aluminum plant. This one power load was more than two thirds as large as the entire load of the Arkansas company prior to the war. The power company offered to supply the entire estimated 100,000 kilowatts of load for the aluminum plant, but was asked to supply only 65,000 kilowatts. This power was offered for a short period of 16 months until the aluminum mill's own power plant could be constructed.

A few months ago it developed that the aluminum plant would not require the full 65,000 kilowatts it had contracted to buy from the power company, so the power company has offered to sign a new contract reducing its contract to 40,000 kilowatts of capacity. This proposed new contract would save the government $1,330,000 over its 24-month period.

Today plans call for the power company to supply one unit of the aluminum plant, while two other units will be supplied from Diesel-driven direct current generators at the aluminum plant.

The power company was ready to deliver power for aluminum production a full month before the plant was ready to take it.

"We feel mighty proud of the fact that power from the Arkansas Power & Light Company produced the first aluminum ever made in Arkansas," Mr. Lynch says. "This is of tremendous importance because for many years Arkansas has supplied the major portion of bauxite from American deposits for aluminum production."

Transporting Frozen Goods

(*Continued from page 37*)

ments, which move exclusively on passenger trains, or special trains run for the purpose, is so heavy and in such constant motion, that the addition of a few hundred or even a thousand containers of this type would be no burden at all.

To assist in the marketing of frozen foods, beyond the normal scope of distribution, where local consignees do not have proper refrigerating equipment, a novel "display top" is available. This exactly fits the open container and converts it into a showcase, which will keep the food in perfect condition until sold, with the regular addition of dry ice when required. The display tops are sold to retailers and can be used indefinitely on successive shipments. Their cost is but a fraction of the present type of store fixture and make it possible for small town merchants to carry a line of frozen foods.

Synthetic Rubber From Soya Beans

(*Continued from page 24*)

given assurance that there will be a sufficient supply of soya bean oil available to assure the production of 200,000,000 pounds of chemurgic rubber annually, if such an amount is needed.

Agripol was made possible through initial research begun by the Northern Regional Research Laboratories of the U. S. Department of Agriculture at Peoria which in the Spring of 1942 succeeded in demonstrating that a rubber-like product (Norepol) could be made by the polymerization of the fatty acids extracted from domestic vegetable oils.

During the succeeding months, Reichhold chemists worked cooperatively with the Peoria staff and accomplished the task of reducing previous laboratory experiments to commercial practice and the synthetic substitute for natural rubber known as Agripol was the result.

Although Reichhold's main plant is at Detroit, one of their plants is located at Tuscaloosa, Alabama.

The Federal Manpower Muddle

(*Continued from page 56*)

remaining civilian personnel of the Federal government could be dismissed. Rather than impairing the necessary functions of government, this dismissal would, in effect, result in greater efficiency among the remaining personnel, provide manpower for industry and the armed forces, reduce the cost of government, and substantially aid in the successful prosecution of the war effort.

The Joint Committee on Reduction of Nonessential Federal Expenditures, of which I am Chairman, has sent to each agency of the government a questionnaire which will make available facts from which recommendations can be made. Hearings are being held which will further clarify the situation. Since the agencies themselves refuse to conserve manpower, then it becomes incumbent upon Congress to curb this waste. The indignation of the people of America, once aware of this profligacy which threatens the security of our nation, will demand it.

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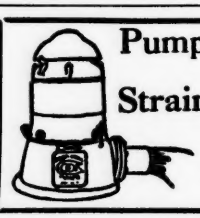
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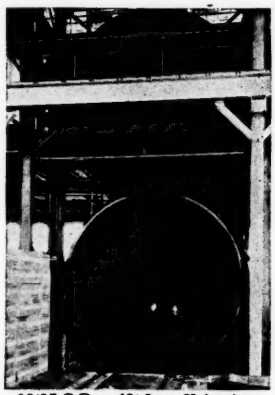

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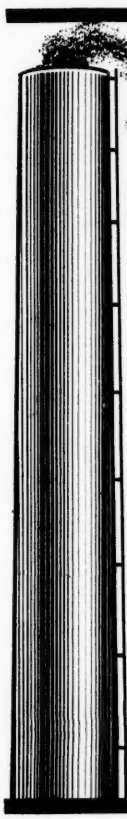

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(*Continued from page* 39)

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MISSOURI

KANSAS CITY—metal plant—Aluminum Company of America, Pittsburgh, Pa., will operate plant in Blue Valley for manufacture of cylinder heads for airplane motors; will rehabilitate plant; M. W. Hodgdon will be manager of plant; Defense Plant Corp., owners; A. E. Aerni, of Aluminum Co., will be construction superintendent.

ST. LOUIS—building—Century Electric Co., 1806 Pine St., received bids Dec. 3 for factory building, N. S. Chestnut St., between 18th and 19th Sts.; L. Baylor Pendleton and William B. Ittner, Inc., Asso. Archts., Board of Education Bldg.; brick, terra cotta, hollow tile, glass blocks and struc. glass; 1-story and basement; 180x109 ft.; install plumbing, sewers, heating and ventilating systems; project includes wrecking and shoring, excavating; conc. work, comp. roof; water proofing; mill work; wood toilet partitions; caulking, glazing; struc. glass; finishing hardware.

NORTH CAROLINA

MAIDEN — equipment — Union Cotton Mills a unit of American Yarn & Processing Co. of Mount Holly plans installing 10 new Saco-Lowell carding machines, twisters and auxiliary equipment.

WASHINGTON—grape growing and winery—Garrett & Co., wine manufacturers, have purchased 500 acres of land in Washington County to produce grapes for processing; within a year the company plans to plant 100 acres in vines and continue planting until entire acreage is used; company may erect winery later.

TEXAS

BEAUMONT—casings, etc.—Sun Oil Co. applied for War Department permit to install 3-in. casings (pipes), stakes, detectors, etc., for shot holes in connection with seismographic operations in Lake Palourde to point northeasterly from Morgan City in St. Mary and Assumption Parishes.

BELTON—pressing plant—B. H. Majors, 4401 Lomo Alto St., Dallas, purchased building and 75-acre site for pressing plant.

DALLAS—dehydration plants—Directors of East Texas Chamber of Commerce conferred with Dallas bankers and business men to plan campaign to speed development of dehydration of food products; J. A. McGill, Paris, president of the regional chamber, promoting plan to build plants in Texas.

Pipe Line—Harold L. Ickes, Petroleum Co-ordinator, applied for authority to build a second pipe line from Texas to New York and Philadelphia, Pa.; pipeline as proposed will be of 20-in. pipe to carry 200,000 bbls. of oil daily from several terminals in the Southwest to the Philadelphia and New York areas.

Addition—Defense Plant Corp., authorized Continental Motors Corp., Detroit, Mich., to make additional plant facilities in Texas; in excess of $600,000.

VIRGINIA

EMPORIA—tent plant—J. W. Hurst & Sons, will establish tent plant, S. Main St.; main office of company, 900 Camp Ave., Norfolk.

RICHMOND—pipe—Plantation Pipe Line Co., builders of pipe line from Baton Rouge, La. to Greensboro, N. C., applied for permission to cross certain Virginia highways with an 8-in. oil pipe line which will bring approxmately 30,000 bbls. of gasoline and light petroleum products into Richmond daily; the 175-mile line into Richmond from Greensboro will come into Virginia at a point near Virgilina and then to Richmond; bids for laying of the line will be called for in about 2 weeks; line to Richmond will cost approximately $3,600,000 and will be financed by Defense Plant Corp.

Additional Plant Facilities—Defense Plant Corp., authorized Universal Moulded Products Corp., New York, to provide for additional plant facilities in Virginia; in excess of $300,000.

WEST VIRGINIA

HUNTINGTON — shops — Refining Engineering Co., Ashland, Ky., and Forest Park, Ill., acquired building at 831-839 Adams Ave.; will move main office and shops to Huntington; plan improvement to structure; main office of company, 1325 Greenup Ave., Ashland.

WHEELING—expansion—Defense Plant Corp., acquired plant of Wheeling Metal Manufacturing Co. at Glendale, including 14 acres of land and buildings; will renovate structures at cost of $375,000; in addition government is providing $150,000 for new machinery and equipment; will be operated by Wheeling Bronze Casting Corp., 36th St. & B. & O. R. R. Crossing.

Blackmer Steam-Jacketed Pump

The Blackmer Pump Company, Grand Rapids, Mich., recently brought out a new and simplified steam-jacketed pump. Units have been installed in war production plants for handling such materials as palm oil, lard, tar, greases and similar liquids that must be processed or transferred while hot. The new steam-jacketed heads are made of cast semi-steel, with threaded intake and exhaust steam ports, and drain plugs, and are suitable for steam pressures up to 125 pounds. Standard Blackmer units in capacities from 20 to 700 GPM and pressures up to 300 psi are available with the new steam-jacketed head.

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ROCK—SAND—GRAVEL
Single and double roll and jaw crushers, hammer mills, super dry pans, steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists. Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.
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Wstg. traction type 3000 lbs. cap. platform 6x5, 2 gates on car, 4 sets of bi-parting doors, with A.C. motor and constant pressure control. All automatic.

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30—2 Ton Yale & Towne spur gear complete with 3 ton trolleys.

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26—½ HP., Pgh. Gear Mach. Co. ratio 52 to 1.
17—8 HP., Tate Jones worm gear 36 to 1 ratio.
3—10 HP. D.O. James spur gear 840 to 30 rpm.
5—60 HP., Poole Eng. Co. 5½ to 1 ratio.

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2—Lakewood type L, size 10-S, mounted on truck complete with 5 HP. A.C. Motors.

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225 kw. Elec. Mchy. 2200 or 220 v. 2 ph. (can reconnect 3 ph.) 60 cy. dir. con. Ideal Steam Engine.

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110 HP. Bessemer Gas Engine.

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Double drum Speedwell 2500 lb. pull at 450' per min. dir. driven by 100 HP. A.C. or D.C. Motor.

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A.C.—D.C. Motors—all sizes 1 to 1500 HP.

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150 K.W. General Electric, type AQB, form E, class 32-150-225, 2-phase, 60 cycle, 220 volts, 341 amps direct connected to 17" x 16" Ames Horizontal Automatic Engine, 125# pressure. Complete with Panel Board, etc.
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3—500—750 & 1000 GPM Steam Underwriters Fire Pumps.
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80	20	1-15/16	5.00	60	16	2-7/16	6.00
20	22	1-15/16	5.65	40	18	2-7/16	6.50
50	24	1-15/16	6.35	70	20	2-7/16	7.00
8	27	1-15/16	7.50	400	22	2-7/16	8.00
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1—4x4-A	3.65	1—9¾x4-C	16.35	
1—4¼x1-AB	1.85	1—9¾x6-AB	12.65	
1—4¼x3-A	3.15	1—10x2-C	11.65	
2—4½x3-O	2.50	1—10x3-B	4.65	
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1—5x1-AB	1.95	1—10¾x3-AB	6.70	
1—5x5-AB	4.85	1—11x2-C	12.50	
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1—6¾x4-AB	5.50	4—26x2-C	24.75	
1—7¼x1-AB	2.65	3—31½x1-AB	16.35	
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1	10x4x1-11/16	10.65	1	20x8x1-15/16	20.00
2	10x8x1-7/16	12.00	10	18x8x1-15/16	19.00
1	11x6x2-7/16	13.50	2	24x3½x 1-15/16	20.50
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The eyes of all America are upon the United States Treasury Roll of Honor appearing in the "Payroll Savings News." For copy write War Savings Staff, Treasury Department, Washington, D. C.

HOW TO "TOP THAT 10% BY NEW YEAR'S"

Out of the 13 labor-management conferences sponsored by the National Committee for Payroll Savings and conducted by the Treasury Department throughout the Nation has come this formula for reaching the 10% of gross payroll War Bond objective:

1. ***Decide to get 10%.***
   It has been the Treasury experience wherever management and labor have gotten together and decided the job could be done, the job was done.
2. ***Get a committee of labor and management to work out details for solicitation.***
   a. They, in turn, will appoint captain-leaders or chairmen who will be responsible for actual solicitation of no more than 10 workers.
   b. A card should be prepared for each and every worker with his name on it.
   c. An estimate should be made of the possible amount each worker can set aside so that an "over-all" of 10% is achieved. Some may not be able to set aside 10%, others can save more.
3. ***Set aside a date to start the drive.***
4. ***There should be little or no time between the announcement of the drive and the drive itself.***
   The drive should last not over 1 week.
5. The opening of the drive may be through a talk, a rally, or just a plain announcement in each department.
6. Schedule competition between departments; show progress charts daily.
7. Set as a goal the Treasury flag with a "T."

AS of today, more than 20,000 firms of all sizes have reached the "Honor Roll" goal of at least 10% of the gross payroll in War Bonds. This is a glorious testimony to the voluntary American way of facing emergencies.

But there is still more to be done. By January 1st, 1943, the Treasury hopes to raise participation from the present total of around 20,000,000 employees investing an average of 8% of earnings to over 30,000,000 investing an average of at least 10% of earnings in War Bonds.

You are urged to set your own sights accordingly and to do all in your power to start the new year on the Roll of Honor, to give War Bonds for bonuses, and to purchase up to the limit, both personally and as a company, of Series F and G Bonds. (Remember that the new limitation of purchases of F and G Bonds in any one calendar year has been increased from $50,000 to $100,000.)

TIME IS SHORT. Our country is counting on you to—

"TOP THAT 10% BY NEW YEAR'S"

EVERYBODY EVERY PAYDAY AT LEAST 10%

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War Savings Bonds

This space is a Contribution to America's All-Out War Effort by MANUFACTURERS RECORD

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